

STATUS OF RED KING CRAB AND TANNER CRAB FISHERIES IN
KODIAK AND THE ALASKA PENINSULA AREAS,
A REPORT TO THE ALASKA BOARD OF FISHERIES

by

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INTRODUCTION

Red king crab *Paralithodes camtschaticus* and Tanner crab *Chionoecetes bairdi* supported important commercial shellfish fisheries in Southwest Alaska during 1960-1990. Catches in the Kodiak and Alaska Peninsula Areas were as high as catches ranged up to 100 million pounds per year for king crab and 40 million pounds per year for Tanner crab (Table 1), often exceeding the value of salmon fisheries. The total harvest was worth an average of \$16 million to fishermen annually from 1960-1990 (Table 2).

Fisheries collapsed due to low abundance by the end of the period, with total closures occurring for king crab in 1983 and for Tanner crab in 1989 along the Alaska Peninsula and 1994 in Kodiak. Causes for the decline in crab population sizes were possibly related to changing environmental conditions in addition to fishing pressure. The term “regime shift” has often been used to describe how the North Pacific Ocean changed during this period. A slow change in the ocean climate began in the early 1980, producing consistently warmer water temperatures and increases in abundance of fish species that are predators of juvenile crabs and compete with adult crabs for food resources. Alaska Department of Fish and Game (ADF&G) research surveys from 1971-1985 had showed only twice in 15 years (1972 and 1977), large catches of very small red king crabs occur indicating the appearance of a dominant year class (Peterson, 1986). Surveys during the late 1970 captured significant numbers of mature female crabs without egg clutches or with clutches infected with nematode worms. Since 1978, there has been no significant recruitment to in the mature king crab population, so increased abundance is not expected in the near future.

Declines in Tanner crab abundance have not been the total collapse as severe as for king crabs. Legal size crab populations are low or depressed in most areas, although successful reproduction has been observed. Female Tanner crabs found in ADF&G surveys generally have full, healthy egg clutches. Surveys have also found occasional high incidence of one and two year old crab, indicating a successful settling event. It has been surmised that fish predation on small crabs and competition for food from groundfish may limit Tanner crab recruitment to legal size.

Management Areas for king crab in Southwest Alaska include Kodiak and the Alaska Peninsula. The Kodiak Management Area includes those waters of the Pacific Ocean south of the latitude of Cape Douglas and east of the longitude of Cape Kumlik. The Alaska Peninsula Management Area includes the waters of the Pacific Ocean west of the longitude of Cape Kumlik and east of the longitude of Scotch Cap Light (Figure 1).

Tanner crab stocks in the Kodiak and Alaska Peninsula areas are subdivided into three districts for management purposes (Figure 2). The Kodiak District includes Pacific Ocean waters south of the latitude of Cape Douglas and east of the longitude of Cape Kumlik. The Chignik District includes waters west of the longitude of Cape Kumlik and east of a line from Kupreanof Point to Castle Rock and east of a line extending 135° from

Castle Rock. The South Peninsula District includes waters west of the Chignik District and east of the longitude of Scotch Cap Light.

RED KING CRAB FISHERY

Salmon fishermen pioneered the Kodiak red king crab fishery. Small amounts of red king crab were landed beginning in 1936, but catches were not officially recorded until 1950. This period in the history of the fishery was exploratory in nature, as fishermen located crabs, determined abundance, tested gear types, and developed markets to sell the product. The Federal Bureau of Commercial Fisheries (now National Marine Fisheries Service) was the management agency. Regulations during this period allowed retention of males only males with a minimum carapace width of 5 ½ inches. In 1949, the size limit was increased to 6 ½ inches CW.

Sixty thousand pounds of king crab were landed in Kodiak during 1950 and the fishery was on its way to becoming a major force in the Alaskan economy (Table 3). Tangle nets were the most popular gear to catch king crab during the early days of the fishery. Vessels were small beach seine skiffs that could handle the large mesh sunken gill net. Tangle net fishing was prohibited by 1955, as the difficulty of removing female and undersized male crabs became apparent. By 1953 small otter trawls were the main gear type used taking king crabs and they remained the dominant gear until 1956.

Pots gradually replaced trawls as fishermen developed better methods of construction and improved pot efficiency. Large male crab could be targeted without handling the small crab and fish caught by trawls. The Kodiak king crab catch increased to 21 million pounds by 1959. Also that year pots and ring nets were classified as the only legal gear and a pot limit of 30 pots per vessel was established for Kodiak. When Alaska gained statehood, management authority was transferred to ADF&G.

The minimum size limit was increased to 7 inches CW in 1963 based on Kodiak area growth studies. This theoretically would allow male king crab at least one year to breed before becoming available to the fishery. The fishery continued to develop during the early 1960s and even with the Good Friday earthquake the 1964 harvest totaled 37 million pounds. The 30-pot limit was dropped in 1965 and the development period that began in 1950 peaked in 1966 with 175 vessels delivering 94 million pounds of king crab to 32 processors in a ten-month fishing season. ADF&G added its first shellfish management positions and issued its first emergency order to protect mating and molting crabs in 1966. Fishermen began building vessels specifically for crab fishing with large decks and circulating sea water systems.

The fishery expanded to offshore areas during 1967 - 1970 as fishermen attempted to maintain the catch levels of previous years. The department started a research fishing program in 1967 to locate concentrations of prerecruit crab and to estimate abundance in the coming years. Results predicted declining abundance of legal sized crabs. The catch

dropped to 43 million pounds during the 1967/68 season and 18 million pounds the following year. Test fishing by the department revealed a higher incidence of barren females in areas of intensive commercial harvest.

Pot limits were again instituted by the Board of Fisheries (BOF) in 1970 at 60 pots per vessel. A policy was established with two main goals:

- To develop and establish a stable fishery, with the objective of eliminating fluctuating harvests,
- To develop and maintain a broad base of various age classes in order to insure breeding success.

The BOF increased the pot limit to 75 in 1971. By 1972, the decline had been reversed and harvests started increasing. The pot limit was raised to 100 in 1979 and to 150 in 1981. Catch during the 1981/82 season was the highest of the previous 14 years at 24 million pounds. This was followed by a harvest of 8.7 million pounds, the lowest in 24 years. The value of the 1982/83 fishery was the second highest ever (\$32.7 million), as a record number of 309 vessels participated.

The 1983 red king crab fishery was not opened by the department due to poor stock condition. Recruitment of legal sized animals had been lacking for 2 years and was not forecast to improve during the following 3 years. Kodiak red king crab stocks have not experienced any notable recruitment since that time and the fishery has remained closed.

A management plan was developed in 1986 to address rebuilding of these depressed populations. A threshold value in number of fertilized female king crabs necessary to maintain reproductive potential was established. Commercial fisheries would not occur when estimated abundance was below that value. The threshold for the Kodiak Management Area was set at 5.1 million fertilized female red king crabs. Recent estimates have averaged about 1% of that minimum.

The red king crab fishery in the Alaska Peninsula Management Area has followed a similar pattern to Kodiak. The first harvest was recorded in 1947 at 141,000 pounds (Table 4). Initial exploitation with trawl gear gave way to pots by the late 1950s, and the harvest peaked in 1966 at 22.6 million pounds. Strong recruitment in the late 1970s led to a 5 million pound catch in the 1980/81 season, the highest since 1968. Subsequent recruitment failure caused the stock to collapse and no fisheries have been allowed since 1983.

TANNER CRAB FISHERY

The domestic Tanner crab fishery in Kodiak and waters south of the Alaska Peninsula began in 1967 when nearly 200,000 pounds were landed. As red king crab stocks declined in the late 1960s, interest increased in the Tanner crab fishery. Market

conditions improved by the 1972/73 season, and Tanner crab established itself as the dominant winter and spring fishery with a harvest of 34.3 million pounds. The majority of which came from the Kodiak District (Table 5). The Chignik harvest peaked in 1977 at 7 million pounds (Table 6), while the South Peninsula's best year was 1979 with a harvest of 8.6 million pounds (Table 7).

ADF&G began assessment work on Tanner crabs in 1973. Pot surveys were examined to estimate the relative annual abundance of crabs and to predict recruitment trends. These estimates allowed the department to establish annual harvest levels. In 1974, the BOF the first harvest levels on Tanner crabs at 35-55 million pounds for Kodiak, Chignik and South Peninsula. An April 30th closure date was adopted to protect crabs at the onset of molting and mating. The Board established a 5½ inch minimum size limit in 1976 to allow males one breeding season before becoming available for harvest.

The commercial fishery peaked during the 1977/78 season when over 45 million pounds were harvested. A Fishery Management Plan (FMP) was established by the North Pacific Fisheries Management Council (NPFMC) in 1978 for Tanner crab in the Exclusive Economic Zone (EEZ) from 3 to 200 miles off Alaska's coast while the state retained management authority within 3 miles of shore (NPFMC 1978). The commercial catch began to decline in the late 1970s. The BOF adopted a 250-pot limit in an attempt to reduce effort in the fishery. The demand for Tanner crabs increased and the exvessel value climbed from \$0.65 cents per pound to \$1.65. Vessel participation increased in spite of declining catches. The South Peninsula and Chignik Districts were designated a super-exclusive area in 1983 and the Kodiak pot limit was reduced to 200.

The joint state-federal FMP was still in effect although there was considerable confusion over the enforcement and effective dates for regulations. A federal judge issued a restraining order in 1984 preventing the State of Alaska from enforcing the Chignik/South Peninsula super-exclusive status and the 200-pot limit in Kodiak outside of three miles. The FMP was amended nine times in six years; however it still could not provide management based on the best scientific information available or produce timely coordination with the state. It was repealed at the request of the NPFMC in 1987. The State of Alaska once again had sole responsibility for the Tanner crab fishery in the Gulf of Alaska. The commercial harvest had declined to about 5 million pounds by this time.

The BOF adopted a sliding scale pot limit in 1990 for Kodiak that limit ranged from 75-150 pots depending on the preseason harvest projection. As crab stocks decreased, the pot limit reduced the amount of gear on the fishing grounds and made inseason management decisions possible. A single pot limit of 75 pots per vessel was adopted for Kodiak in 1993 and while a sliding scale of 40-75 pots was enacted for the Chignik and South Peninsula Districts.

The last fishery allowed in Chignik and South Peninsula Districts was in 1989, when the harvest totaled 1.4 million pounds. The most recent fishery in Kodiak was 1994, with a catch of 1.3 million pounds. Estimates of legal size crab abundance has remained at levels below that at which commercial fisheries have occurred.

STOCK STATUS

ADF&G began long-term yearly assessment of crab stocks beginning in 1971. The goal of the initial program was to monitor abundance and reproductive condition of king crab and Tanner crabs with pot gear.

Trawl surveys were conducted in the region as early as 1963. Because trawling allows faster surveying and captures younger age classes of crabs, it gradually replaced the crab pots as the preferred gear for stock assessment (Jackson, 1990). The department was able to survey the Kodiak and Alaska Peninsula Areas with about half the sea days that were required previously. The last pot survey was conducted in 1987.

ADF&G conducted a summer trawl survey in 1998 to assess Kodiak and Alaska Peninsula red king and Tanner crab populations. Tows were completed in areas of known king and Tanner crab habitat. Population estimates for king and Tanner crabs were derived from the trawl survey data using the *area swept* technique (Alverson, 1969). Assuming that the trawl swept a path 12.2 m wide, the area swept in a 1.85-km tow was 0.012km². Hence, catch per tow was converted into a density estimate that could be multiplied by the area of the station to give an estimate of abundance. In stations where more than one tow was completed, the number caught per kilometer towed was calculated by combining the total catch of all hauls in the station and dividing by the total distance towed in those hauls. Population estimates were computed for desired subsets of geographic or biological variables by summing the estimates from the individual stations.

Red King Crab

Abundance of red king crabs remains at historically low levels. Only 255 male and 418 female red king crabs were captured in 37 trawl hauls (10% of surveyed hauls) during 1998. The king crab catch ranged from zero to 102 crab per kilometer (Figure 3), the majority of which were mature. Mean lengths of males and females from the Kodiak District was 147.7 mm and 132.9 mm, respectively (Figure 4). There are a greater number of crabs surviving to legal sizes than in previous years (Figure 5). Conversely, the population of king crab in the Alaska Peninsula has decreased across a wide range of crab sizes (Figure 6). Mean lengths of males and females for the Alaska Peninsula area were 144.5 mm and 122.4 mm, respectively. Female king crabs were generally fully ovigerous for both districts (Figure 7).

Abundance of male king crabs estimated from the 1998 the trawl survey area was 69,256 male crabs in Kodiak and 36,251 male crabs for the Alaska Peninsula. This estimate is lower than those from the previous year, when abundance of male crabs were estimated at 78,692 and 97,246 for the Kodiak and Alaska Peninsula areas, respectively (Urban, 1997).

Tanner Crab

Tanner crab populations are also at historically low levels. During the 1998 survey 30,911 male and 19,051 female Tanner crabs were captured in 323 hauls. Unlike king crabs, Tanner crabs were captured in 93% of the survey stations (Figure 8). The highest densities of male crabs were found in Kodiak's inshore bays. The population of male Tanner crab shows a general increase the abundance of prerecruit size crabs with little change in recruit and post recruit crabs (Figure 9). The strong contribution by prerecruit sized crabs contributed to a decrease in the mean width of males (78.7 mm) from the previous two years surveys, 81.9mm and 94.9mm CW, respectively (Figure 10). There were 1.7 million legal Tanner crabs estimated from the 1998 Kodiak survey (Table 8).

The mean CW of males and females from the Chignik District was 88.1 mm and 69.6 mm, respectively. The abundance estimate of male Tanner crabs shows a substantial decrease across a wide range of crab sizes from the 1997 survey (Figure 11). The legal Tanner crab estimate was 197,000 crabs in 1998 (Table 9). The mean width of males and females from the South Peninsula District was 92.8 mm and 77.9 mm, respectively. The increase in abundance of 90 mm CW crabs indicates that more crabs are surviving to larger sizes than in the previous years (Figure 12). There were 258,000 legal crabs estimated in 1998. Egg clutches of 3,530 mature female Tanner crab were examined on the survey, and fecundity as measured by clutch fullness was largely found to be adequate.

Legal crab populations are low or depressed in most areas and recruitment to legal size population is not expected to increase significantly throughout the area. Legal populations in Chignik and the South Peninsula Districts remain below the levels at which fisheries last occurred in 1989. Most Kodiak sections are also below levels at which the last commercial fisheries occurred. Exceptions to the dismal forecast for potential fisheries were found in two Kodiak sections (Table 10). The Northeast and Eastside sections both showed cohorts of prerecruit crabs that may molt to a fishable population by the year 2000.

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Table 1. Historic red king crab and Tanner crab harvest^a from the Kodiak, Alaska Peninsula, Chignik, and South Peninsula Areas, 1950-1998.

Fishing Year	Kodiak red king crab	Kodiak Tanner crab	Alaska Peninsula red king crab ^b	Alaska Peninsula Tanner crab ^c	Total
1950	0.07	-	2.12	-	2.19
1951/52	0.33	-	0.59	-	0.92
1952/53	0.58	-	0.29	-	0.87
1953/54	2.53	-	0.38	-	2.91
1954/55	2.49	-	0.32	-	2.81
1955/56	3.72	-	1.64	-	5.36
1956/57	7.02	-	4.22	-	11.24
1957/58	5.07	-	6.69	-	11.76
1958/59	7.14	-	7.25	-	14.39
1959/60	14.35	-	6.17	-	20.52
1960/61	21.06	-	6.70	-	27.76
1961/62	28.96	-	3.90	-	32.86
1962/63	37.63	-	2.27	-	39.90
1963/64	37.72	-	6.54	-	44.26
1964/65	41.60	-	14.35	-	55.95
1965/66	94.43	-	14.71	-	109.14
1966/67	73.82	0.11	22.58		96.51
1967/68	43.45	2.56	17.25	0.13	63.39
1968/69	18.21	6.82	10.94	0.65	36.62
1969/70	12.20	8.42	4.14	2.09	26.85
1970/71	11.72	6.74	3.43	2.29	24.18
1971/72	10.88	9.48	4.12	3.62	28.10
1972/73	15.48	30.70	4.07	6.37	56.62
1973/74	14.39	23.58	4.26	12.35	54.58
1974/75	23.58	13.64	4.57	8.81	50.60
1975/76	24.06	27.34	2.61	13.86	67.87
1976/77	17.97	20.72	0.96	12.44	52.09
1977/78	13.50	33.28	0.73	12.14	59.65
1978/79	12.02	29.17	3.09	11.22	55.50
1979/80	14.61	18.62	4.45	10.48	48.16
1980/81	20.45	11.75	5.08	6.94	44.22
1981/82	24.37	13.76	3.17	7.83	49.13
1982/83	8.73	19.93	1.68	6.63	36.97
1983/84	No Fishery	14.48	No Fishery	2.45	16.93

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Table 1. (page 2 of 2)

Fishing Year	Kodiak red king crab	Kodiak Tanner crab	Alaska Peninsula red king crab ^b	Alaska Peninsula Tanner crab ^c	Total
1934/85	No Fishery	12.02	No Fishery	2.93	14.95
1985/86	No Fishery	8.99	No Fishery	3.97	12.96
1986/87	No Fishery	4.83	No Fishery	2.59	7.42
1987/88	No Fishery	3.89	No Fishery	3.51	7.40
1988/89	No Fishery	5.21	No Fishery	1.38	6.59
1989/90	No Fishery	3.46	No Fishery	No Fishery	3.46
1990/91	No Fishery	1.92	No Fishery	No Fishery	1.92
1991/92	No Fishery	2.40	No Fishery	No Fishery	2.40
1992/93	No Fishery	1.32	No Fishery	No Fishery	1.32
1993/94	No Fishery	1.52	No Fishery	No Fishery	1.52
1994/95	No Fishery	No Fishery	No Fishery	No Fishery	
1995/96	No Fishery	No Fishery	No Fishery	No Fishery	
1996/97	No Fishery	No Fishery	No Fishery	No Fishery	
1997/98	No Fishery	No Fishery	No Fishery	No Fishery	

^a Millions of pounds.

^b For king crab, Chignik and South Peninsula Districts are combined as the Alaska Peninsula Area.

^c For Tanner crab, the Alaska Peninsula is split into the Chignik and South Peninsula Districts.

Table 2. Historic red king crab and Tanner crab harvest value ^a for the Kodiak, Alaska Peninsula Chignik and South Peninsula Areas, 1950-1998.

Fishing Year	Kodiak red king crab	Kodiak Tanner crab	Alaska Peninsula red king crab ^b	Alaska Peninsula Tanner crab ^c	Total
1950	N/A	N/A	N/A	N/A	N/A
1951/52	N/A	N/A	N/A	N/A	N/A
1952/53	N/A	N/A	N/A	N/A	N/A
1953/54	N/A	N/A	N/A	N/A	N/A
1954/55	N/A	N/A	N/A	N/A	N/A
1955/56	N/A	N/A	N/A	N/A	N/A
1956/57	N/A	N/A	N/A	N/A	N/A
1957/58	N/A	N/A	N/A	N/A	N/A
1958/59	N/A	N/A	N/A	N/A	N/A
1959/60	N/A	N/A	N/A	N/A	N/A
1960/61	1.79	N/A	N/A	N/A	1.79
1961/62	27.50	N/A	N/A	N/A	27.50
1962/63	3.76	N/A	0.20	N/A	3.96
1963/64	3.78	N/A	0.65	N/A	4.43
1964/65	4.16	N/A	1.44	N/A	5.60
1965/66	12.28	N/A	1.47	N/A	13.75
1966/67	8.12	N/A	4.29	N/A	12.41
1967/68	11.29	N/A	5.87	N/A	17.16
1968/69	4.73	0.48	2.74	N/A	7.95
1969/70	3.42	0.84	1.04	N/A	5.30
1970/71	3.52	0.74	N/A	N/A	N/A
1971/72	4.24	1.23	N/A	0.36	5.83
1972/73	8.50	5.22	N/A	0.12	13.84
1973/74	6.48	5.96	3.07	0.81	16.32
1974/75	10.60	2.32	1.97	1.23	16.12
1975/76	15.88	5.47	1.07	2.67	25.09
1976/77	24.62	6.84	0.59	4.04	36.09
1977/78	18.09	14.31	0.73	4.97	38.10
1978/79	19.23	16.04	3.92	5.83	45.02
1979/80	13.88	10.20	4.09	5.66	33.83
1980/81	21.47	7.64	4.88	4.25	38.24
1981/82	48.74	22.70	4.44	8.74	84.62
1982/83	32.74	24.91	5.37	7.36	70.38
1983/84	No Fishery	17.38	No Fishery	2.57	19.95

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Table 2. (page 2 of 2)

Fishing Year	Kodiak red king crab	Kodiak Tanner crab	Alaska Peninsula red king crab ^b	Alaska Peninsula Tanner crab ^c	Total
1934/85	No Fishery	18.03	No Fishery	4.16	22.19
1985/86	No Fishery	17.08	No Fishery	6.87	23.95
1986/87	No Fishery	12.65	No Fishery	5.31	17.96
1987/88	No Fishery	9.34	No Fishery	7.74	17.08
1988/89	No Fishery	15.89	No Fishery	3.84	19.73
1989/90	No Fishery	8.30	No Fishery	No Fishery	8.30
1990/91	No Fishery	3.05	No Fishery	No Fishery	3.05
1991/92	No Fishery	5.33	No Fishery	No Fishery	5.33
1992/93	No Fishery	2.78	No Fishery	No Fishery	2.78
1993/94	No Fishery	3.42	No Fishery	No Fishery	3.42
1994/95	No Fishery	No Fishery	No Fishery	No Fishery	
1995/96	No Fishery	No Fishery	No Fishery	No Fishery	
1996/97	No Fishery	No Fishery	No Fishery	No Fishery	
1997/98	No Fishery	No Fishery	No Fishery	No Fishery	

^a Millions of Dollars.

^b For king crab, Chignik and South Peninsula Districts are combined as the Alaska Peninsula Area.

^c For Tanner crab, the Alaska Peninsula is split into the Chignik and South Peninsula Districts.

Table 3. Historic commercial red king crab catch effort within the Kodiak Area, 1950-1998.

Fishing Year	Vessels	Landings	Number of Crab	Number of Pounds	Pot Lifts	CPUE	Average weight of Crab (lb)	Price per pound
1950			7,592	64,882			8.5	
1951/52			39,238				8.5	
1952/53			58,021	579,707			10	
1953/54			280,881	2,531,120			9	
1954/55			320,059	2,491,536			7.8	
1955/56			390,258	3,717,145			9.5	
1956/57			699,281	7,015,988			10	
1957/58			496,298	5,070,638			10.2	
1958/59			695,782	7,137,529			10.3	
1959/60			1,416,944	14,348,110			10.1	
1960/61	143	-	2,116,375	21,064,871	-	-	10	0.09
1961/62	148	-	3,181,554	28,962,900	-	-	9.1	0.95
1962/63	195	-	4,146,143	37,626,703	-	-	9.1	0.1
1963/64	181	-	4,158,988	37,716,223	-	-	9.1	0.1
1964/65	189	-	4,923,309	41,596,518	95,951	51	8.4	0.1
1965/66	175	-	11,061,709	94,431,026	173,083	64	8.5	0.13
1966/67	213	-	8,476,299	73,817,779	223,174	38	8.7	0.11
1967/68	227	3,847	5,147,321	43,448,492	207,392	25	8.4	0.26
1968/69	178	1,839	2,348,950	18,211,485	119,146	20	7.8	0.26
1969/70	136	978	1,606,181	12,200,571	96,841	17	7.6	0.28
1970/71	100	830	1,561,318	11,719,970	119,192	13	7.5	0.3
1971/72	89	507	1,539,157	10,884,152	66,166	23	7.1	0.39
1972/73	88	683	2,029,670	15,479,916	70,806	29	7.6	0.55
1973/74	129	837	1,847,679	14,397,287	77,826	24	7.8	0.45
1974/75	158	1,195	2,910,201	23,582,720	110,297	26	8.1	0.45
1975/76	169	1,569	2,976,909	24,061,651	113,795	26	8.1	0.66
1976/77	195	1,165	2,177,956	17,966,846	130,777	17	8.2	1.37
1977/78	179	1,186	1,590,477	13,503,666	145,867	11	8.5	1.34
1978/79	194	1,077	1,464,021	12,021,850	177,261	8	8.2	1.6
1979/80	247	1,346	1,979,394	14,608,900	207,991	9	7.3	0.95
1980/81	164	1,175	2,787,199	20,448,654	201,531	14	7.3	1.05
1981/82	246	2,214	3,035,674	24,237,601	388,751	8	8	2
1982/83	309	1,373	1,011,109	8,729,761	283,795	4	8.6	3.75
1983/84 to 1998/99 NO FISHERY - COMMERCIAL SEASON REMAINED CLOSED								

Table 4. Catch and effort statistics for red king crab in the Alaska Peninsula Area, 1947-1998.

Year	Number of Vessels	Number of Landings	No. Crab	Number of Pounds	Pots Lifted	CPUE	Average Weight	Price Per Lb.
1947	-	-	18,800	141,000	-	-	7.5	-
1948	-	-	518,500	3,363,000	-	-	6.5	-
1949	-	-	205,500	3,476,000	-	-	12.0	-
1950	-	-	270,000	2,124,000	-	-	7.9	-
1951	-	-	86,500	599,000	-	-	6.9	-
1952	-	-	32,400	298,000	-	-	7.6	-
1953	-	-	38,400	380,000	-	-	10.0	-
1954	-	-	31,666	316,660	-	-	10.0	-
1955	-	-	164,069	1,640,688	-	-	10.0	-
1956	-	-	421,651	4,221,496	-	-	10.0	-
1957	-	-	668,709	6,687,092	-	-	10.0	-
1958	-	-	724,595	7,245,947	-	-	10.0	-
1959	-	-	568,303	6,166,974	-	-	10.0	-
1960	-	1,496	677,100	6,700,000	-	-	9.9	-
1961	-	959	419,354	3,900,000	-	-	9.3	-
1962	-	657	287,624	2,273,013	-	-	7.9	-
1963	27	1,037	970,739	6,539,129	-	-	6.7	0.09
1964	40	1,297	1,906,018	14,354,060	-	-	7.5	0.1
1965	36	1,081	1,813,728	14,713,501	-	-	8.1	0.1
1966	37	1,255	2,494,949	22,577,587	-	-	9.0	0.1
1967	39	1,062	1,943,463	17,252,307	-	-	8.9	0.19
1968/69	34	885	1,273,567	10,944,472	-	-	8.6	0.34
1969/70	33	415	558,800	4,137,000	51,300	11	7.7	0.25
1970/71	25	339	446,042	3,425,760	38,995	11	7.7	0.25
1971/72	26	364	597,394	4,123,130	41,759	14	6.9	0.28
1972/73	29	301	610,300	4,069,362	34,408	18	6.7	-
1973/74	36	389	658,632	4,260,674	53,642	12	6.9	0.72
1974/75	36	318	644,054	4,572,101	44,951	14	7.1	0.43
1975/76	37	248	367,221	2,605,310	35,104	11	7.2	0.41
1976/77	26	122	125,778	958,069 ^a	17,748	7	7.7	0.61
1977/78	15	73	119,641	726,382	10,551	11	6.1	1
1978/79	33	226	520,168	3,093,859	31,142	17	5.9	1.27
1979/80	68	288	738,859	4,453,557	41,753	18	6.0	0.92
1980/81	51	358	821,071	5,080,632 ^a	54,114	15	6.2	0.96
1981/82	56	341	515,882	3,168,689	51,776	10	6.1	1.4
1982/83	63	157	271,237	1,683,654	30,894	9	6.2	3.2
1983/84 to 1998/99 NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								

Table 5. Commercial catch and effort for the Tanner crab *Chionoecetes bairdi*, Kodiak Management District, 1967-1998.

Year	Number of Vessels	Number of Landings	Number of crab ^a	Number of Pounds	Pots Lifted	CPUE	Average Weight	Price Per Pound
1967	-	83	-	110,961	-	-	-	0.07
1968	-	817	-	2,560,687	-	-	-	0.10
1969	85	955	-	6,827,312	72,748	43	-	0.11
1969/70	67	833	3,237,244	8,416,782	78,266	42	2.6	0.11
1970/71	82	453	2,686,067	6,744,163	60,967	44	2.5	0.11
1971/72	46	505	3,878,618	9,475,902	65,907	59	2.4	0.13
1972/73	105	1,466	13,609,688	30,699,777	188,158	67	2.3	0.17
1973/74	123	1,741	11,857,573	29,820,899	217,523	59	2.5	0.20
1974/75	74	471	5,459,940	13,649,966	73,826	83	2.5	0.17
1975/76	104	1,168	10,748,958	27,336,909	199,304	64	2.5	0.20
1976/77	102	998	7,830,727	20,720,079	164,213	48	2.6	0.33
1977/78	148	1,483	12,401,243	33,281,472	251,621	49	2.6	0.43
1978/79	218	1,225	10,702,829	29,173,807	275,455	38	2.7	0.55
1979/80	211	1,385	6,813,128	18,623,875	282,946	24	2.7	0.55
1980/81	188	771	4,398,631	11,748,629	174,351	25	2.7	0.65
1981/82	221	950	5,413,467	13,756,159	230,403	24	2.5	1.65
1982/83	348	1,439	7,744,812	18,927,061	377,562	21	2.4	1.25
1983/84	303	1,229	5,891,968	14,478,066	303,764	10	2.5	1.20
1984/85	214	710	4,567,037	12,024,553	176,830	26	2.6	1.50
1985/86	233	601	3,457,930	8,996,151	160,808	21	2.6	1.90
1986/87	189	503	1,830,365	4,833,473	110,963	16	2.6	2.62
1987/88	176	557	1,614,874	3,888,906	101,488	16	2.4	2.40
1988/89	171	567	2,106,320	5,208,999	86,556	24	2.5	3.05
1989/90	233	548	1,435,477	3,456,314	97,333	15	2.4	2.40
1990/91	137	448	764,107	1,917,713	54,110	14	2.5	1.59
1991/92	143	434	982,391	2,400,213	47,384	20	2.4	2.22
1992/93	140	353	518,982	1,318,446	43,528	12	2.5	2.10
1993/94	129	378	510,681	1,252,342	41,527	12	2.5	2.25
1994/95			NO FISHERY					
1995/96			NO FISHERY					
1996/97			NO FISHERY					
1997/98			NO FISHERY					
1998/99			NO FISHERY					

^aIncludes deadloss.

Table 6. Chignik District Tanner crab *Chionoecetes bairdi* catch and effort statistics, 1968-1998.

Year	Vessels	Number of Landings	Number of Crab ^a	Number of Pounds	Pots Lifted	Average Weight	CPUE	Price per Pound
1968	-	-	-	21,100	-	-	-	-
1969	-	-	-	38,100	-	-	-	-
1970	-	-	-	2,800	-	-	-	-
1971	-	-	-	152,300	-	-	-	-
1972	Harvest Confidential ^b							
1973	15	56	297,363	747,788	8,080	2.5	51	0.16
1974	25	115	1,586,560	4,054,873	28,083	2.6	57	0.20
1974/75	25	91	1,438,508	3,649,444	22,675	2.5	63	0.14
1975/76	35	288	2,724,509	6,926,161	52,381	2.5	52	0.19
1976/77	21	141	2,098,226	5,672,919	40,604	2.7	52	0.33
1977/78	32	140	1,725,042	4,693,830	38,414	2.8	45	0.42
1978/79	39	126	926,253	2,536,105	28,378	2.7	33	0.55
1979/80	42	155	2,340,004	3,517,920	54,627	2.6	25	0.54
1980/81	24	112	1,534,847	3,653,723	44,022	2.4	35	0.64
1981/82	45	174	1,343,500	3,240,576	47,830	2.4	28	1.21
1983	48	136	1,432,029	3,497,370	60,210	2.4	24	1.12
1984	17	41	269,724	659,043	14,665	2.4	18	1.09
1985	15	27	162,448	375,476	15,708	2.3	10	1.42
1986	6	12	85,697	188,162	7,435	2.2	12	1.97
1987	10	20	89,329	195,060	7,052	2.2	13	2.28
1988	6	11	87,148	183,111	6,544	2.1	13	2.33
1989	6	34	142,470	323,120	9,845	2.3	15	3.05
1990	NO FISHERY							
1991	NO FISHERY							
1992	NO FISHERY							
1993	NO FISHERY							
1994	NO FISHERY							
1995	NO FISHERY							
1996	NO FISHERY							
1997	NO FISHERY							
1998	NO FISHERY							

^aIncludes deadloss.

^bRecords remain confidential where less than three vessels participated.

Table 7. Tanner crab *Chionoecetes bairdi* catch and effort statistics for South Peninsula District 1967-1998.

Year	Number of Vessels	Number of Landings	Number of Crab ^a	Number of Pounds	Pots Lifted	Average Weight	CPUE	Price Per Pound ^b	Percent Recruits ^c
1967	-	-	-	3,100	-	-	-	-	
1968	-	155	36,835	110,610	-	3	-	-	
1969	-	173	221,946	606,178	-	2.7	-	-	
1970	-	-	-	2,093,600	-	-	-	-	
1971	17	242	813,610	2,140,585	-	2.6	-	0.10	
1972	-	-	-	3,618,900	-	-	-	-	
1973	36	390	2,213,006	5,615,563	53,573	2.5	41	-	
1974	44	386	3,504,668	8,300,578	58,444	2.4	60	-	
1974/75	44	131	2,053,530	5,195,800	38,153	2.5	54	0.14	
1975/76	36	288	2,724,509	6,926,161	52,381	2.5	52	0.20	
1976/77	28	389	2,524,565	6,773,838	63,143	2.7	40	0.32	
1977/78	36	374	2,847,948	7,446,270	70,587	2.6	40	0.40	
1978/79	48	332	3,267,122	8,684,408	82,374	2.7	40	0.51	65.8
1979/80	61	363	2,581,544	6,961,251	96,989	2.7	27	0.54	39.5
1980/81	43	268	1,274,539	3,294,106	59,560	2.6	21	0.58	34.7
1981/82	72	365	1,815,060	4,589,042	81,008	2.5	22	1.05	50.2
1983	82	230	1,144,096	2,863,798	70,524	2.5	16	1.20	55.4
1984	61	207	775,472	1,789,883	50,726	2.3	15	1.04	29.6
1985	52	184	1,097,182	2,549,686	47,465	2.3	23	1.42	73.0
1986	74	187	1,589,759	3,781,950	65,078	2.4	24	1.72	72.9
1987	54	106	950,300	2,400,784	37,511	2.5	25	2.03	56.1
1988	73	148	1,359,371	3,328,809	52,516	2.4	26	2.20	78.6
1989	65 ^d	87	433,112	1,055,082	27,958	2.4	15	2.70	52.9
1990	NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								
1991	NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								
1992	NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								
1993	NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								
1994	NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								
1995	NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								
1996	NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								
1997	NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								
1998	NO FISHERY- COMMERCIAL SEASON REMAINED CLOSED								

^aIncludes deadloss.

^bComputed for live crab only

^cRecruits = newshell male crab from 137 to 163 mm carapace width.

^dOne additional vessel was registered but did not fish in the District.

Table 8. Tanner crab population estimates from trawl surveys in the Kodiak area, 1987-1998.

Year	Females			No. Sublegal Males by size (mm)				Recruits	Postrecruit		Total Legal	Total Males	Total Crab
	Juvenile	Adult	Total	<70	70-91	92-114	>114		<165 mm	>164 mm			
Northeast													
1987	461,089	1,135,422	1,596,511	352,860	248,415	326,506	493,916	101,484	197,865	33,038	332,387	1,754,084	3,350,595
1988	2,643,594	674,490	3,318,084	2,495,836	395,350	545,140	685,327	384,565	23,104	20,977	428,647	4,550,299	7,868,383
1989	5,481,792	5,654,266	11,136,058	5,127,986	1,546,105	2,165,369	2,319,049	1,409,193	133,905	269,859	1,812,957	12,971,466	24,107,524
1990	1,812,656	3,140,834	4,953,490	1,446,757	1,482,180	1,142,711	1,024,535	510,407	93,031	101,879	705,317	5,801,500	10,754,990
1991	4,385,849	2,055,075	6,440,924	3,651,597	1,501,747	1,330,396	1,080,017	424,636	25,367	52,117	502,121	8,065,877	14,506,801
1992	2,013,074	1,365,357	3,378,431	1,586,874	1,225,453	929,682	793,749	209,337	15,516	7,070	231,922	4,767,681	8,146,112
1993	2,273,819	1,116,830	3,390,649	2,224,926	435,614	581,625	637,663	263,095	31,759	16,787	311,640	4,191,469	7,582,118
1994	602,256	1,227,010	1,829,266	627,897	170,908	255,845	455,371	102,589	98,082	2,401	203,072	1,713,093	3,542,359
1995	6,481,040	1,423,393	7,904,433	6,459,818	1,453,343	326,713	372,625	10,279	132,191	0	142,470	8,754,969	16,659,402
1996	2,132,659	2,508,696	4,641,355	1,766,596	2,544,865	1,190,131	427,287	30,485	54,026	1,603	86,114	6,014,993	10,656,348
1997	423,217	1,021,369	1,444,586	523,906	935,670	1,120,040	604,140	48,509	24,329	0	72,838	3,256,593	4,701,179
1998	1,716,808	3,313,210	5,030,018	1,285,328	2,361,636	2,195,617	2,012,063	393,528	44,144	12,334	450,006	8,304,650	13,334,668
Eastside													
1987	5,476,413	3,930,451	9,406,864	5,750,053	609,468	514,257	1,202,144	149,925	299,091	89,925	538,941	8,614,863	18,021,727
1988	2,083,954	820,032	2,903,986	1,616,718	443,776	627,028	732,705	298,165	100,786	1,914	400,865	3,821,092	6,725,078
1989	2,393,419	3,821,312	6,214,731	2,029,181	1,567,590	1,640,007	1,285,700	799,441	270,769	29,333	1,099,543	7,622,021	13,836,752
1990	1,547,033	10,045,389	11,592,422	1,299,698	679,016	2,019,193	4,059,072	788,369	162,670	60,418	1,011,457	9,068,436	20,660,858
1991	1,490,845	3,677,868	5,168,713	1,207,670	289,090	655,547	2,669,044	3,016,121	494,482	38,622	3,549,225	8,370,576	13,539,289
1992	1,292,574	1,963,566	3,256,140	1,612,556	328,625	472,466	1,584,166	460,988	280,962	64,984	806,934	4,804,767	8,060,907
1993	1,723,641	1,504,582	3,228,233	1,362,714	252,485	406,367	1,003,469	108,462	382,993	18,760	510,215	3,535,250	6,763,483
1994	1,768,539	571,130	2,339,669	1,311,715	706,286	465,077	572,892	28,420	141,209	2,837	172,466	3,228,436	5,568,105
1995	3,796,916	505,420	4,302,336	3,326,873	594,529	456,566	411,403	24,858	87,815	2,394	115,067	4,904,438	9,206,774
1996	2,099,145	916,539	3,015,684	2,187,039	705,077	609,875	849,485	107,556	179,487	14,538	301,581	4,653,057	7,668,741
1997	802,758	652,061	1,454,819	772,755	678,462	724,637	708,745	118,243	104,661	15,679	238,583	3,123,181	4,578,000
1998	4,398,250	2,432,231	6,830,481	3,861,520	1,771,144	2,732,362	2,244,142	295,638	441,227	86,566	823,431	11,432,599	18,263,081
Southeast													
1987	2,379,119	894,205	3,273,324	2,044,847	413,335	337,537	875,142	480,004	88,816	2,841	571,661	4,242,522	7,515,846
1988	243,200	314,486	557,686	188,394	221,880	607,570	1,185,633	777,880	129,593	50,773	958,246	3,161,723	3,719,409
1989	922,092	424,847	1,346,939	694,841	140,444	246,215	564,215	175,593	70,553	9,739	255,885	1,901,600	3,248,539
1990	1,148,017	781,102	1,929,119	1,086,357	131,469	299,245	651,302	383,859	117,252	5,970	507,081	2,675,454	4,604,573
1991	4,650,523	919,633	5,570,156	4,448,179	425,927	270,594	367,736	173,532	37,162	7,382	218,076	5,730,512	11,300,668
1992	2,156,307	1,322,229	3,478,536	1,648,095	688,608	443,849	587,767	33,246	139,404	10,076	182,726	3,551,045	7,029,581
1993	3,893,506	563,806	4,457,312	3,625,310	248,343	430,013	403,299	27,357	111,011	8,453	146,821	4,853,786	9,311,098
1994	112,692	222,890	335,582	88,247	28,663	87,918	474,046	108,208	54,865	4,252	167,325	846,201	1,181,783

-Continued-

Table 8. (page 2 of 3)

Year	Females			No. Sublegal Males by size (mm)				Recruits	Postrecruit		Total Legal	Total Males	Total Crab
	Juvenile	Adult	Total	<70	70-91	92-114	>114		<165 mm	>164 mm			
1995	2,728,372	110,416	2,838,788	2,425,953	15,058	28,566	82,912	76,922	47,721	2,370	127,013	2,679,502	5,518,290
1996	2,567,943	141,849	2,709,792	2,274,742	486,210	112,033	124,446	55,489	68,179	7,990	131,658	3,129,089	5,838,881
1997	460,018	141,758	601,775	361,124	206,538	114,928	45,616	3,134	45,000	1,337	49,471	777,676	1,379,451
1998	1,989,704	128,040	2,117,744	2,242,546	47,418	92,558	228,163	28,851	26,243	866	55,960	2,666,645	4,784,389
Southwest													
1987	2,368,774	590,671	2,959,445	1,990,338	45,752	727,616	1,799,111	638,664	107,127	44,416	790,207	5,353,024	8,312,469
1988	191,219	225,135	416,354	168,051	16,405	63,339	591,313	1,370,943	61,725	76,170	1,508,838	2,347,946	2,764,300
1989	2,716,302	220,553	2,936,855	2,510,149	202,807	189,372	443,446	281,673	118,617	85,688	485,978	3,831,752	6,768,607
1990	3,527,315	1,383,437	4,910,752	2,635,176	1,259,988	709,183	704,467	53,127	59,552	11,567	124,246	5,433,060	10,343,812
1991	1,248,463	262,105	1,510,568	1,020,587	219,284	403,480	553,335	97,159	33,952	3,185	134,296	2,330,982	3,841,550
1992	461,617	212,484	674,101	455,293	153,648	320,046	236,226	296,449	58,330	5,803	360,582	1,525,795	2,199,896
1993	6,656,829	244,881	6,901,710	6,173,566	505,031	182,384	392,985	251,151	69,760	13,352	334,263	7,588,229	14,489,939
1994	205,702	120,561	326,263	131,884	70,630	60,597	145,516	129,013	23,087	7,429	159,529	568,156	894,419
1995	151,984	91,201	243,185	137,702	57,628	109,653	124,067	33,631	48,012	0	81,643	510,693	753,878
1996	348,245	44,722	392,967	326,522	98,585	162,621	240,133	36,057	74,458	1,571	112,086	939,947	1,332,914
1997	265,172	66,131	331,303	255,708	102,022	82,313	185,338	124,784	88,079	3,170	216,033	841,414	1,172,717
1998	236,303	34,231	270,534	232,953	58,264	50,176	61,014	19,712	85,406	2,193	107,312	509,718	780,252
Westside													
1987	2,541,394	1,526,443	4,067,837	1,243,848	2,401,608	1,149,549	1,302,877	835,177	46,421	50,537	932,135	7,030,017	11,097,854
1988	3,232,321	1,125,086	4,357,407	2,903,179	160,149	477,223	606,182	243,134	45,969	21,869	310,972	4,457,705	8,815,112
1989	8,655,122	1,185,882	9,841,004	7,125,499	1,387,997	651,689	739,127	373,683	71,456	32,282	477,421	10,381,733	20,222,737
1990	1,539,037	4,037,828	5,576,865	725,246	1,325,090	807,624	874,879	209,757	98,770	42,662	351,189	4,084,028	9,660,893
1991	188,063	564,038	752,101	130,079	138,641	480,619	440,221	35,631	22,320	4,335	62,286	1,251,846	2,003,947
1992	168,907	419,822	588,729	129,031	171,209	214,118	299,796	114,508	46,032	5,615	166,155	980,309	1,569,038
1993	397,675	587,878	985,553	266,121	161,469	153,721	292,347	56,918	114,132	8,001	179,051	1,052,709	2,038,062
1994	159,998	248,767	408,765	108,531	113,242	74,755	90,262	31,733	42,415	0	74,148	460,938	869,703
1995	169,581	419,442	589,023	108,716	165,389	162,040	136,931	15,092	89,628	2,203	106,923	679,999	1,269,022
1996	221,986	406,957	628,943	104,838	263,794	293,384	226,226	36,717	99,630	469	136,816	1,025,058	1,654,001
1997	221,626	679,270	900,896	83,887	293,572	424,991	330,268	70,487	62,404	2,605	135,497	1,268,215	2,169,111
1998	785,691	640,981	1,426,672	694,427	171,682	292,985	238,698	38,125	53,772	3,008	94,905	1,492,698	2,919,370
North Mainland													
1987	668,509	2,267,682	2,936,191	622,331	926,344	2,693,481	2,761,800	498,657	101,469	39,646	639,772	7,643,728	10,579,919
1988	3,055,286	861,060	3,916,346	2,592,371	131,758	424,485	1,227,352	922,762	82,755	32,415	1,037,932	5,413,898	9,330,244

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Table 8. (page 3 of 3)

Year	Females			No. Sublegal Males by size (mm)				Recruits	Postrecruit		Total Legal	Total Males	Total Crab
	Juvenile	Adult	Total	<70	70-91	92-114	>114		<165 mm	>164 mm			
1989	4,557,775	1,263,559	5,821,334	4,670,560	251,950	289,575	1,150,687	417,410	105,261	165,459	688,130	7,050,902	12,872,236
1990	7,046,141	3,301,573	10,347,714	5,970,049	2,313,040	806,067	1,470,971	148,847	115,216	36,289	300,352	10,860,479	21,208,193
1991	760,801	1,128,212	1,889,013	605,036	606,408	537,513	948,691	61,666	121,712	4,747	188,125	2,885,773	4,774,786
1992	2,379,002	898,078	3,277,080	2,279,142	224,065	392,813	753,649	108,416	70,078	14,613	193,107	3,842,776	7,119,856
1993	3,812,333	1,022,423	4,834,756	3,215,642	150,137	418,016	820,819	157,189	146,364	36,468	340,021	4,944,635	9,779,391
1994	3,023,459	536,322	3,559,781	2,228,789	554,325	232,786	380,218	143,776	116,170	58,652	318,598	3,694,716	7,254,497
1995	626,581	246,765	873,346	676,801	133,803	61,118	151,268	38,078	49,671	18,653	106,402	1,129,392	2,002,738
1996	4,440,244	390,477	4,830,721	4,282,612	340,128	215,935	341,473	34,667	164,161	21,682	220,510	5,400,658	10,231,379
1997	2,395,876	263,513	2,659,389	2,345,312	505,068	343,651	654,116	52,567	186,794	8,054	247,415	4,095,561	8,754,950
1998	3,768,973	228,208	3,997,182	3,527,325	316,626	274,495	293,841	0	129,230	15,548	144,779	4,557,067	8,554,248
South Mainland													
1987	11,393	64,558	75,951	37,975	11,393	37,975	3,798	0	0	0	0	91,141	167,092
GRAND TOTAL													
1987	13,906,688	10,409,430	24,316,118	12,042,252	4,656,314	5,786,921	8,438,786	2,703,910	840,789	260,402	3,805,101	34,729,374	59,045,492
1988	11,449,574	4,020,290	15,469,864	9,964,549	1,369,319	2,744,783	5,028,512	3,997,449	443,932	204,119	4,645,500	23,752,663	39,222,527
1989	24,726,502	12,570,419	37,296,921	22,158,216	5,096,893	5,182,227	6,502,224	3,456,993	770,561	592,360	4,819,914	43,759,474	81,056,395
1990	16,620,199	22,690,162	39,310,361	13,163,283	7,190,782	5,784,022	8,785,225	2,094,366	646,492	258,785	2,999,643	37,922,955	77,233,316
1991	12,724,544	8,606,932	21,331,476	11,063,149	3,181,096	3,678,149	6,059,042	3,808,745	734,995	110,388	4,654,128	28,635,564	49,967,040
1992	8,671,479	6,181,536	14,853,015	7,710,991	2,791,607	2,772,995	4,255,353	1,222,944	1,220,642	108,160	2,551,746	20,082,692	34,935,707
1993	18,757,803	5,040,209	23,798,012	16,868,279	1,753,109	2,172,126	3,550,581	864,271	856,019	101,822	1,822,112	26,166,207	49,964,219
1994	5,876,645	2,929,680	8,806,325	4,497,063	1,634,055	1,176,978	2,098,307	543,740	475,828	75,571	1,095,139	10,501,542	19,307,867
1995	13,954,474	2,796,636	16,751,110	13,135,863	2,419,749	1,144,656	1,279,207	198,861	455,038	25,620	679,519	18,658,994	35,410,104
1996	11,810,222	4,409,239	16,219,461	10,942,349	4,438,659	2,583,980	2,209,049	300,970	639,942	47,854	988,766	21,162,803	37,382,264
1997	4,568,667	2,824,101	7,392,768	4,342,691	2,721,331	2,810,559	2,528,223	417,724	511,267	30,844	959,835	13,362,640	20,755,408
1998	12,895,729	6,776,901	19,672,630	11,844,098	4,726,771	5,638,194	5,077,922	775,854	780,022	120,516	1,676,393	28,963,378	48,636,008

Table 9. Tanner crab population estimates from trawl surveys in the South Peninsula and Chignik Management District, 1988-1998.

Fishing Section	Females			No. Sublegal Males by size (mm)				Recruits	Postrecruit		Total Legal	Total Males	Total Crab
	Juvenile	Adult	Total	<70	70-91	92-114	>114		<165 mm	>164 mm			
<u>SOUTH PENINSULA DISTRICT</u>													
Sanak Island													
1989	1,007,287	116,393	1,123,680	1,087,034	23,924	31,519	64,368	6,836	0	0	6,836	1,213,681	2,337,361
1990	544,525	102,533	647,058	412,210	80,760	52,532	22,785	0	0	0	0	568,287	1,215,345
1991	448,105	27,532	475,637	461,396	30,380	34,178	0	0	0	0	0	525,954	1,001,591
1992	344,623	41,013	385,636	270,952	42,912	45,760	3,798	0	0	0	0	363,422	749,058
1993	337,216	19,132	356,348	260,565	30,577	37,408	9,998	0	0	0	0	338,548	694,896
1994	87,847	69,011	156,858	112,055	13,413	18,801	19,823	0	0	0	0	164,092	320,950
1996	579,289	134,287	713,576	433,898	53,476	29,469	36,368	0	0	0	0	553,211	1,266,787
1997	104,890	53,408	158,298	79,644	75,563	38,236	17,180	0	0	0	0	210,623	368,921
1998	287,241	401,487	688,728	389,587	81,490	125,691	63,941	0	0	0	0	660,709	1,349,437
Morzhovoi Bay													
1988	473,143	393,460	866,603	256,652	287,299	245,461	221,888	96,780	30,848	17,019	144,647	1,155,947	2,022,550
1989	3,840,620	1,173,058	5,013,678	3,214,760	1,373,096	440,767	133,655	42,427	4,949	0	47,376	5,209,654	10,223,332
1990	2,137,939	1,047,225	3,185,164	1,503,423	663,670	551,967	197,960	25,633	25,542	1,489	52,664	2,969,684	6,154,848
1991	1,657,718	478,548	2,136,266	1,318,755	426,210	209,931	57,608	15,555	4,667	0	20,222	2,032,726	4,168,992
1992	364,690	886,270	1,250,960	193,851	455,385	278,843	207,281	39,945	21,471	949	62,365	1,197,725	2,448,685
1993	72,434	544,697	617,131	18,974	160,368	414,318	368,297	62,370	63,859	949	127,178	1,089,135	1,706,266
1994	43,583	284,888	328,471	9,922	62,598	132,024	214,544	7,299	49,193	0	56,492	475,580	804,051
1996	221,620	107,996	329,616	191,235	22,344	14,476	53,533	5,696	31,185	0	36,881	318,469	648,085
1997	142,085	103,607	245,692	93,088	79,525	63,073	38,078	6,646	10,622	0	17,267	291,030	536,722
1998	927,801	1,905,001	2,832,801	372,190	1,244,517	1,545,607	337,412	40,345	81,441	0	121,786	3,621,511	6,454,313
Cold Bay/Belkofski													
1988	263,424	311,506	574,930	133,813	222,565	234,339	220,235	88,143	32,649	8,520	129,312	940,264	1,515,194
1989	465,622	55,256	520,878	408,728	54,811	29,720	16,589	3,881	488	0	4,369	514,217	1,035,095
1990	1,819,773	553,714	2,373,487	1,536,289	526,568	276,381	224,763	88,021	51,348	4,548	143,917	2,707,918	5,081,405
1991	601,571	588,961	1,190,532	668,699	135,225	223,859	374,770	74,553	110,621	161	185,335	1,587,888	2,778,420
1992	177,787	174,384	352,171	95,544	110,096	97,452	142,607	39,898	39,104	1,721	80,723	526,422	878,593
1993	100,302	269,850	370,152	68,373	87,201	156,298	137,850	35,907	18,608	434	54,949	504,671	874,823
1994	96,033	220,312	316,345	28,880	54,379	64,115	75,642	27,345	10,266	1,258	38,869	261,885	578,230
1996	339,068	15,337	354,405	266,412	62,717	40,124	30,565	24,165	2,530	201	26,896	426,714	781,119
1997	118,157	12,184	130,341	44,101	59,543	90,588	80,558	37,302	936	483	38,721	313,512	443,854
1998	374,298	149,169	523,467	116,355	270,327	322,268	168,190	49,039	17,619	5,616	72,274	949,414	1,472,882

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Table 9. (page 2 of 5)

Fishing Section	Females			No. Sublegal Males by size (mm)				Recruits	Postrecruit		Total Legal	Total Males	Total Crab
	Juvenile	Adult	Total	<70	70-91	92-114	>114		<165 mm	>164 mm			
Pavlof/Volcano													
1988	438,378	879,351	1,317,729	351,825	213,743	527,769	473,115	211,734	88,807	79839	380,380	1,946,832	3,264,561
1989	1,193,787	1,898,744	3,092,531	752,840	448,297	374,030	447,775	121,787	80,943	17669	220,399	2,243,341	5,335,872
1990	1,138,250	2,110,361	3,248,611	823,545	574,445	631,345	345,196	62,129	125,646	18957	206,732	2,581,263	5,829,874
1991	440,000	549,233	989,233	398,020	76,496	276,907	273,133	38,822	89,006	3039	130,867	1,155,423	2,144,656
1992	206,620	387,633	594,253	96,109	162,427	150,644	164,303	32,774	52,064	0	84,838	658,321	1,252,574
1993	115,627	201,551	317,178	71,677	168,723	494,229	230,544	44,414	27,416	1925	73,755	1,038,928	1,356,106
1994	40,819	123,378	164,197	25,438	50,672	91,918	143,134	54,379	28,337	0	82,716	393,878	558,075
1996	391,494	55,285	446,779	367,493	40,122	31,041	52,307	14,841	9,517	992	25,350	516,313	963,092
1997	70,299	79,456	149,755	31,066	48,449	82,056	53,514	5,405	28,417	949	34,771	249,857	399,612
1998	107,725	176,994	284,719	33,533	150,682	314,198	381,821	8,180	51,664	0	59,843	940,078	1,224,796
Beaver/Balboa/Unga Strait													
1988	123,769	76,533	200,302	106,816	66,274	50,497	22,020	5,399	10,364	0	15,763	261,370	461,672
1989	129,353	247,345	376,698	141,019	56,566	48,228	30,418	0	6,059	0	6,059	282,290	658,988
1990	373,873	479,216	853,089	384,768	40,079	155,649	89,422	16,441	6,615	0	23,056	692,974	1,546,063
1991	337,522	188,765	526,287	313,050	36,940	56,286	51,489	5,058	1,127	0	6,185	463,950	990,237
1992	73,138	128,905	202,043	80,582	30,326	47,470	20,585	564	2,026	0	2,590	181,553	383,596
1993	9,322	43,753	53,075	16,876	7,062	28,751	29,838	3,164	4,361	0	7,525	90,052	143,127
1994	10,118	29,294	39,412	9,240	4,361	11,329	25,120	2,254	5,938	0	8,192	58,242	97,654
1996	716,832	5,415	722,247	746,234	10,645	9,232	4,541	905	460	0	1,365	772,017	1,494,264
1997	107,308	23,353	130,661	57,538	34,559	4,218	6,683	0	0	0	0	102,996	233,657
1998	116,365	79,539	195,904	88,495	37,608	51,697	5,075	0	0	0	0	182,875	378,779
West Nagai													
1989	263,853	202,990	466,843	307,542	136,756	71,670	23,766	2,101	5,383	0	7,484	547,218	1,014,061
1990	223,997	36,745	260,742	228,844	17,172	17,328	5,913	0	908	0	908	270,165	530,907
1991	212,474	24,805	237,279	236,403	6,002	6,002	18,007	3,813	0	0	3,813	270,227	507,506
1992	24,726	33,234	57,960	13,306	8,516	19,137	8,255	0	3,165	0	3,165	52,379	110,339
1993	19,405	4,835	24,240	16,141	9,946	74,494	14,797	908	0	0	908	116,286	140,526
1994	20,348	24,860	45,208	8,615	24,858	29,968	27,774	8,468	0	0	8,468	99,683	144,891
1996	50,747	4,706	55,453	40,628	7,431	16,597	20,148	0	908	0	908	85,712	141,165
1997	334,022	263,780	597,802	180,257	292,164	173,397	25,182	0	4,706	0	4,706	675,706	1,273,508
1998	79,789	104,054	183,842	34,976	94,673	152,269	54,389	3,761	760	0	4,520	340,827	524,669

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Table 9. (page 3 of 5)

Fishing Section	Females			No. Sublegal Males by size (mm)				Recruits	Postrecruit		Total Legal	Total Males	Total Crab
	Juvenile	Adult	Total	<70	70-91	92-114	>114		<165 mn	>164 mm			
Stepovak													
1989	369,775	129,844	499,619	327,572	19,700	18,217	4,025	0	0	0	0	369,514	869,133
1990	891,103	138,654	1,029,757	992,870	7,256	28,929	19,636	8,266	6,158	0	14,424	1,063,115	2,092,872
1991	225,164	24,116	249,280	273,356	8,175	30,978	13,539	0	8,171	0	8,171	334,219	583,499
1992	286,231	26,900	313,131	255,298	7,249	31,206	7,802	2,013	0	0	2,013	303,568	616,699
1993	27,147	4,177	31,324	35,652	2,013	5,092	4,025	0	3,079	0	3,079	49,861	81,185
1994	30,462	2,013	32,475	32,303	0	0	0	0	0	0	0	32,303	64,778
1996	158,463	0	158,463	158,924	6,038	2,013	6,038	0	0	0	0	173,013	331,476
1997	25,774	18,114	43,888	67,372	40,254	14,089	0	0	2,013	0	2,013	123,727	167,616
1998	41,426	2,013	43,439	40,438	2,013	4,025	0	0	0	0	0	46,476	89,915
SOUTH PENINSULA TOTALS													
1988	1,298,714	1,660,850	2,959,564	849,106	789,881	1,058,068	937,258	402,056	162,668	105,378	670,102	4,304,413	7,263,977
1989	7,270,297	3,823,630	11,093,927	6,239,495	2,113,150	1,014,151	720,596	177,032	97,822	17,669	292,523	10,379,915	21,473,842
1990	7,129,460	4,468,448	11,597,908	5,881,949	1,909,950	1,714,131	905,675	200,490	216,217	24,994	441,701	10,853,406	22,451,314
1991	3,922,555	1,881,961	5,804,516	3,669,679	719,429	838,141	788,545	137,801	213,591	3,200	354,592	6,370,386	12,174,902
1992	1,477,816	1,678,339	3,156,155	1,005,643	816,910	670,511	554,631	111,193	235,659	2,671	349,523	3,397,218	6,553,373
1993	681,454	1,087,994	1,769,448	488,259	465,890	1,210,591	795,350	146,764	117,323	3,308	267,395	3,227,485	4,996,933
1994	329,210	753,755	1,082,965	226,452	210,281	348,155	506,035	99,746	93,734	1,258	194,738	1,485,661	2,568,626
1996	2,457,513	323,027	2,780,540	2,204,825	202,773	142,952	203,500	45,608	44,601	1,193	91,402	2,845,452	5,625,992
1997	902,536	553,903	1,456,439	553,065	630,056	465,658	221,195	49,352	46,693	1,432	97,478	1,967,451	3,423,890
1998	1,934,646	2,818,255	4,752,901	1,075,574	1,881,309	2,515,756	1,010,828	101,324	151,483	5,616	258,423	6,741,890	11,494,791
CHIGNIK DISTRICT													
Ivanof													
1989	502,222	266,214	768,436	451,363	139,929	782,548	739,638	336,765	12,413	12,413	361,591	2,475,069	3,243,505
1990	883,810	32,971	916,781	1,040,228	14,699	108,905	250,741	108,961	0	0	108,961	1,523,534	2,440,315
1991	360,136	1,476	361,612	349,152	0	0	1,723	7,136	0	738	7,874	358,749	720,361
1992	32,735	2,215	34,950	37,240	1,969	984	5,028	4,119	1,282	738	6,139	51,360	86,310
1993	54,793	1,625	56,418	27,817	41,776	9,880	2,751	0	395	0	395	82,619	139,037
1994	44,186	12,094	56,280	13,569	22,612	12,866	3,832	984	246	0	1,230	54,109	110,389
1995	60,450	3,832	64,282	72,813	2,848	492	2,461	2,707	492	0	3,199	81,813	146,095
1996	72,588	699	73,287	73,697	41,649	6,890	7,871	8,754	0	0	8,754	138,861	212,148
1997	40,249	4,675	44,924	56,022	4,595	7,770	4,183	3,691	492	246	4,429	77,000	121,924
1998	27,874	1,191	29,065	40,904	1,864	246	1,230	1,723	0	0	1,723	45,966	75,031

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Table 9. (page 4 of 5)

Fishing Section	Females			No. Sublegal Males by size (mm)				Recruits	Postrecruit		Total Legal	Total Males	Total Crab
	Juvenile	Adult	Total	<70	70-91	92-114	>114		<165 mm	>164 mm			
Mitrofanía													
1989	193,422	510,311	703,733	201,538	155,170	637,889	315,908	42,526	17,719	21,263	81,508	1,392,013	2,095,746
1990	280,518	49,611	330,129	226,831	147,864	178,760	224,330	81,523	22,790	6,582	110,895	888,680	1,218,809
1991	491,176	51,907	543,083	469,640	113,946	89,887	96,212	87,350	5,064	2,532	94,946	864,631	1,407,714
1992	290,955	6,875	297,830	219,423	36,769	6,451	14,620	17,153	0	2,532	19,685	296,948	594,778
1993	133,718	17,870	151,588	76,188	68,542	37,635	15,337	18,459	9,047	653	28,159	225,861	377,449
1994	48,370	8,682	57,052	32,122	19,976	14,992	6,150	13,384	2,532	0	15,916	89,156	146,208
1995	221,670	39,309	260,979	258,696	13,475	46,293	32,346	27,261	0	2,532	29,793	380,603	641,582
1997	581,969	129,834	711,804	376,751	832,433	412,232	101,307	8,230	25,322	10,129	43,680	1,766,404	2,478,207
1998	278,452	283,845	562,297	202,037	177,978	230,584	88,287	25,342	31,019	0	56,361	755,247	1,317,545
Chignik Bay													
1989	672,315	450,163	1,122,478	660,618	89,843	81,938	174,032	40,159	13,229	0	53,388	1,059,819	2,182,297
1990	1,650,408	423,973	2,074,381	1,330,223	112,046	133,699	445,000	83,477	77,931	1,387	162,795	2,183,763	4,258,144
1991	1,119,262	486,770	1,606,032	1,065,392	98,759	48,866	131,640	67,386	66,421	0	133,807	1,478,464	3,084,496
1992	1,150,083	323,334	1,473,417	1,307,665	91,362	69,122	34,071	0	14,828	0	14,828	1,517,048	2,990,465
1993	823,018	216,258	1,039,276	790,570	467,458	307,173	186,929	22,190	60,687	3,285	86,162	1,838,292	2,877,568
1994	235,448	135,863	371,311	72,104	520,864	514,182	143,525	28,567	32,314	949	61,830	1,312,505	1,683,816
1995	173,571	93,530	267,101	206,860	3,191	52,921	174,183	82,082	14,528	0	96,610	533,765	800,866
1996	1,007,659	128,777	1,136,436	995,237	34,926	44,795	249,658	263,870	72,615	0	336,485	1,661,101	2,797,537
1997	1,125,526	334,726	1,460,252	1,020,376	270,496	167,556	237,470	150,391	77,358	5,367	233,116	1,929,015	3,389,267
1998	427,675	626,553	1,054,228	292,559	187,095	243,303	230,118	45,704	91,684	1,213	138,601	1,091,676	2,145,904
Kujulik													
1989	83,550	13,089	96,639	78,148	722	9,150	11,386	931	0	0	931	100,337	196,976
1990	394,255	122,744	516,999	380,715	2,193	10,486	10,206	2,525	0	0	2,525	406,125	923,124
1991	8,256	949	9,205	14,470	0	0	0	0	0	0	0	14,470	23,675
1992	108,457	18,988	127,445	129,874	760	760	3,038	0	1,519	0	1,519	135,951	263,396
1993	107,646	16,184	123,830	100,150	81,074	29,658	1,367	0	0	0	0	212,249	336,079
1994	7,736	3,190	10,926	9,141	7,322	4,952	6,471	0	2,279	0	2,279	30,165	41,091
1995	851	28,922	29,773	2,772	0	911	456	0	0	0	0	4,139	33,912
1996	231,502	7,595	239,097	188,334	0	0	0	0	0	0	0	188,334	427,431
1997	49,589	61,537	111,126	63,018	456	3,711	14,105	0	5,425	0	5,425	86,714	197,841
1998	39,290	15,190	54,480	38,305	0	2,279	3,798	0	760	0	760	45,140	99,621

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Table 9. (Page 5 of 5)

Fishing Section	Females			No. Sublegal Males by size (mm)				Recruits	Postrecruit		Total Legal	Total Males	Total Crab
	Juvenile	Adult	Total	<70	70-91	92-114	>114		<165 mm	>164 mm			
CHIGNIK DISTRICT TOTALS													
1989	1,451,509	1,239,777	2,691,286	1,391,667	385,664	1,511,525	1,240,964	420,381	43,361	33,676	497,418	5,027,238	7,718,524
1990	3,208,991	629,299	3,838,290	2,977,997	276,802	431,850	930,277	276,486	100,721	6,582	383,789	5,000,715	8,839,005
1991	1,978,830	541,103	2,519,933	1,898,654	212,706	138,753	229,574	161,872	71,486	3,270	236,628	2,716,315	5,236,248
1992	1,582,231	351,412	1,933,643	1,694,201	130,859	77,317	56,757	21,271	35,259	3,270	59,800	2,018,934	3,952,577
1993	1,119,174	251,937	1,371,111	994,727	658,849	384,345	206,384	40,648	70,129	3,939	114,716	2,359,021	3,730,132
1994	335,740	159,829	495,569	126,937	570,773	546,992	159,978	42,936	37,371	949	81,256	1,485,936	1,981,505
1995	456,542	165,594	622,136	541,142	19,515	100,618	209,445	112,050	15,020	2,532	129,602	1,000,322	1,622,458
1996	1,311,749	137,071	1,448,820	1,257,288	76,575	51,685	257,530	272,624	72,615	0	345,239	1,988,297	3,437,117
1997	1,797,334	530,773	2,328,106	1,516,168	1,107,980	591,269	357,066	162,312	108,597	15,742	286,651	3,859,133	6,187,239
1998	773,292	926,779	1,700,071	573,805	366,937	476,412	323,433	72,768	123,462	1,213	197,444	1,938,030	3,638,100

Table 10. Estimates of Tanner crab abundance in 1998 and from the survey prior to the most recent fishery in the Kodiak, Chignik, and Alaska Peninsula Districts.

	Year of Most Recent Fishery	Most Recent Commercial Harvest (million Pounds)	<u>No. of Legal Size Crab</u>		<u>No. of Prerecruit 1 Crab</u>	
			1998 Survey	Survey prior to Most Recent Fishery	1998 Survey	Survey Prior to Most Recent Fishery
Kodiak District						
Northeast	1994	0.2	450,006	311,640	2,012,063	637,663
Eastside	1994	0.4	823,431	510,215	2,244,142	1,003,469
Southeast	1991	0.4	55,960	507,081	228,163	651,302
Southwest	1994	0.3	107,312	334,263	61,014	392,985
Westside	1991	0.1	94,905	351,189	238,698	874,879
North Mainland	1994	0.3	144,779	340,021	293,841	820,819
Kodiak Total		1.7	1,676,393	2,354,409	5,077,921	4,381,117
Chignik	1989	0.3	197,444	No Survey Estimate	323,433	No Survey Estimate
South Peninsula	1989	1.1	258,423	670,102	1,010,828	937,258

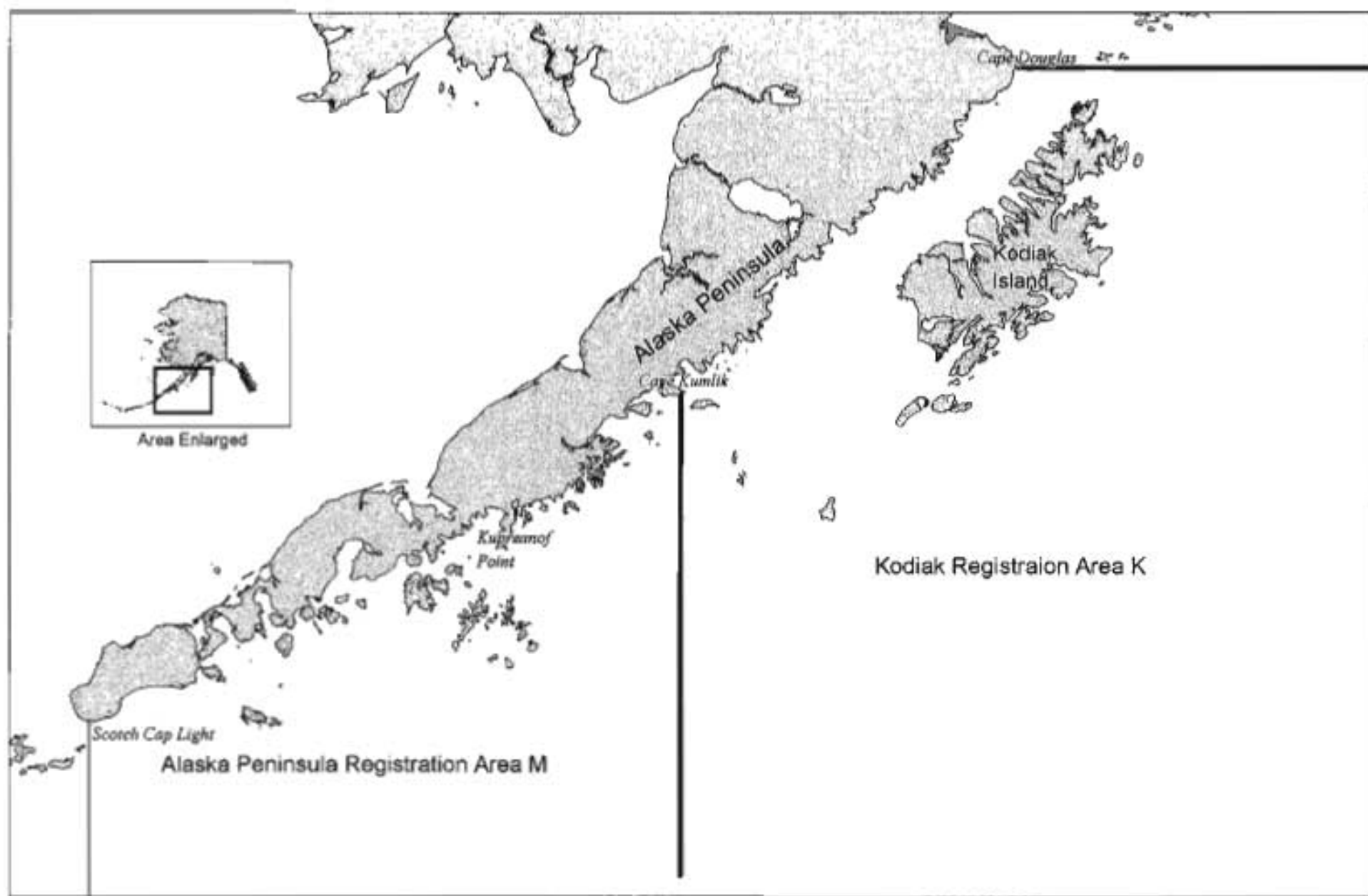


Figure 1. Kodiak (Area K) and Alaska Peninsula (Area M) king crab registration areas.

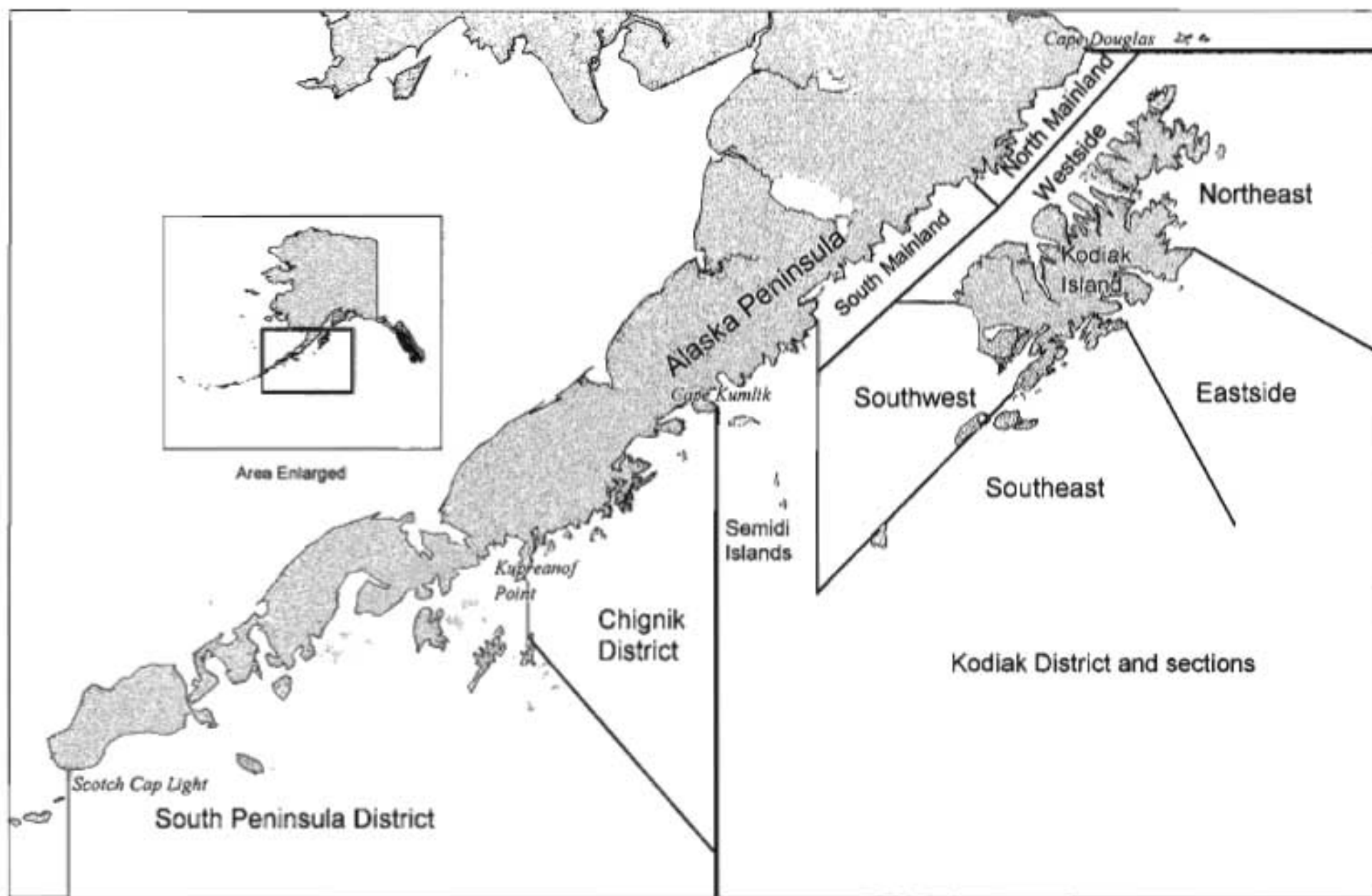


Figure 2. Kodiak, Chignik, and South Peninsula Tanner crab registration districts.

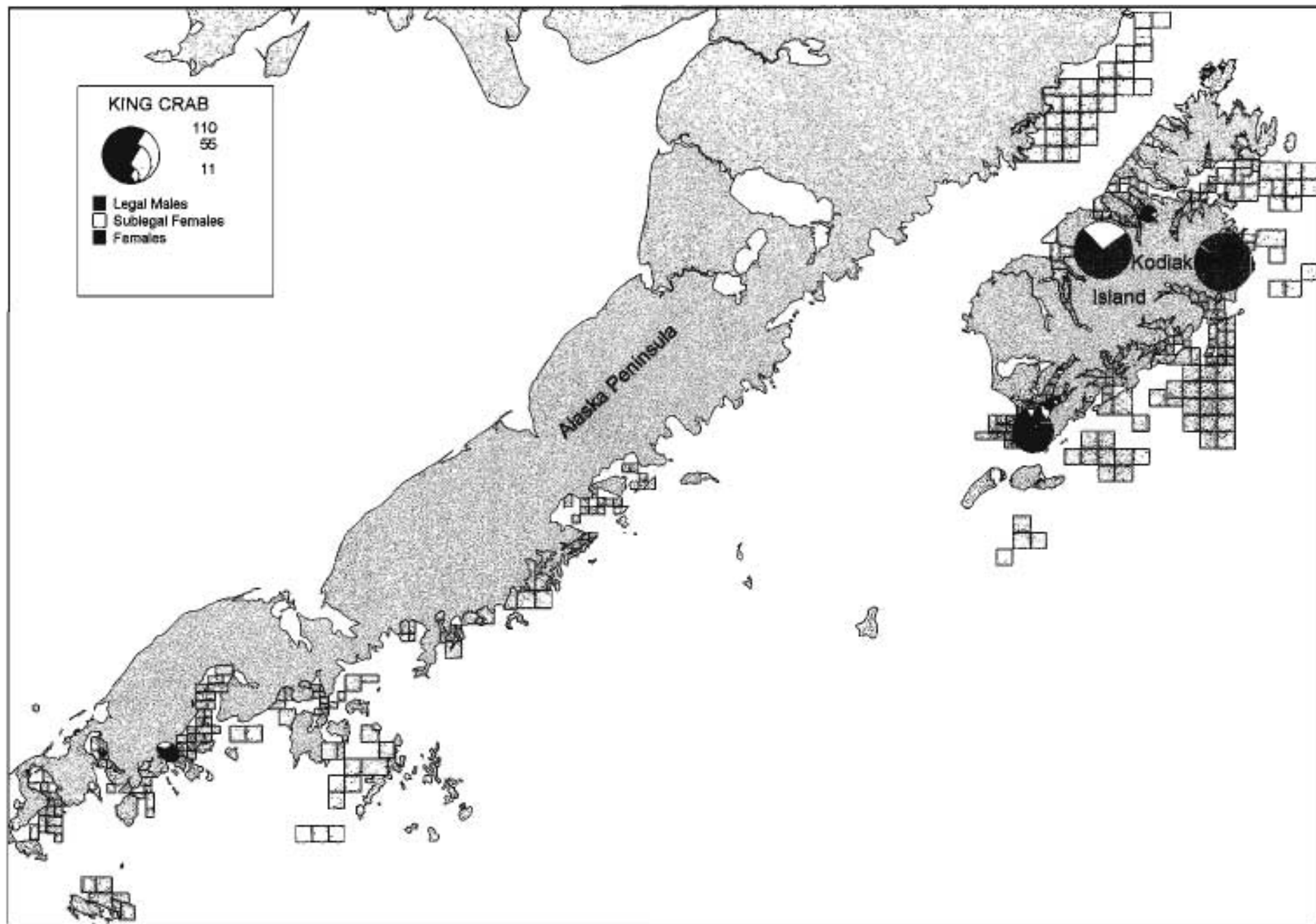


Figure 3. Red king crab catch per kilometer towed from the 1998 Kodiak and Alaska Peninsula trawl survey. e.g. The size of disks represent estimated abundance, shading represents sex and size.

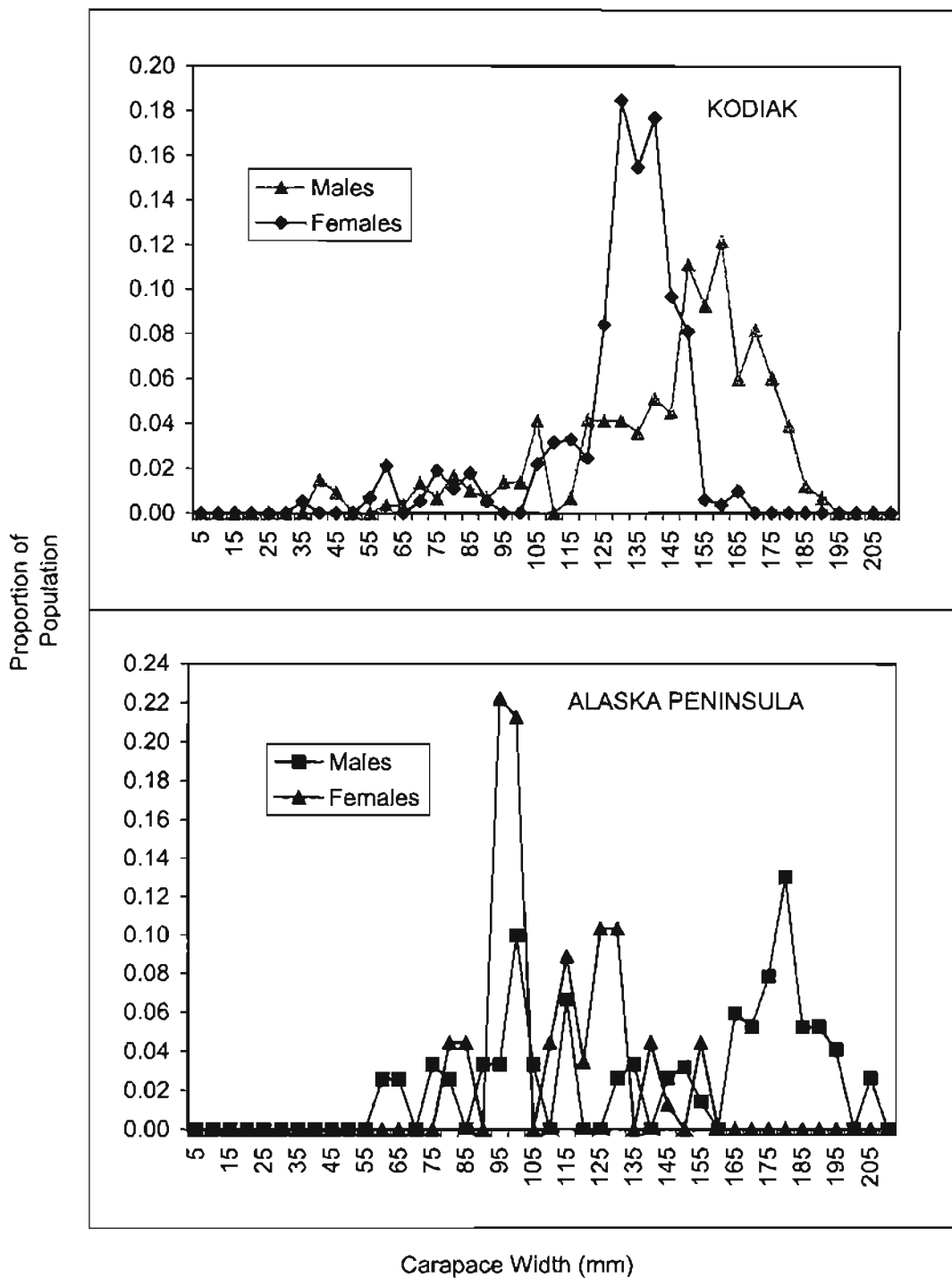


Figure 4. Size distribution of male and female red king crab sampled during the 1998 Westward Region trawl survey.

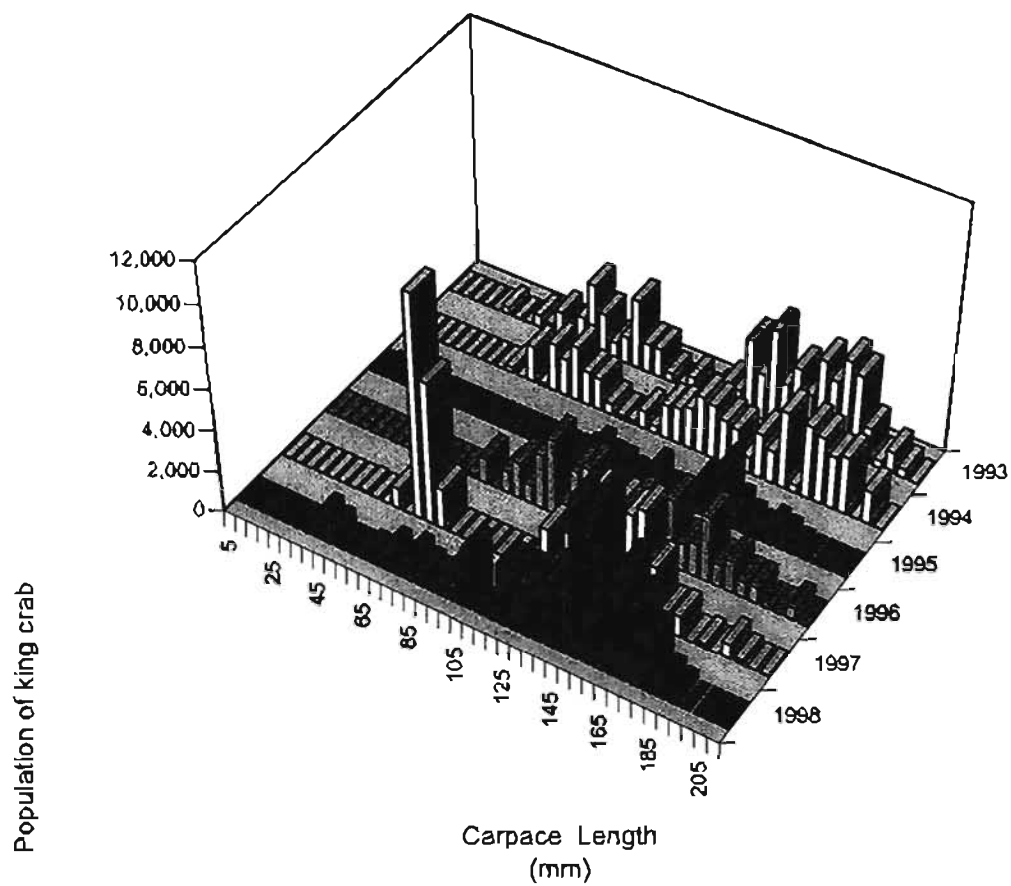


Figure 5. Estimated male red king crab population size distribution from trawl surveys of the Kodiak Area, 1993-1998.

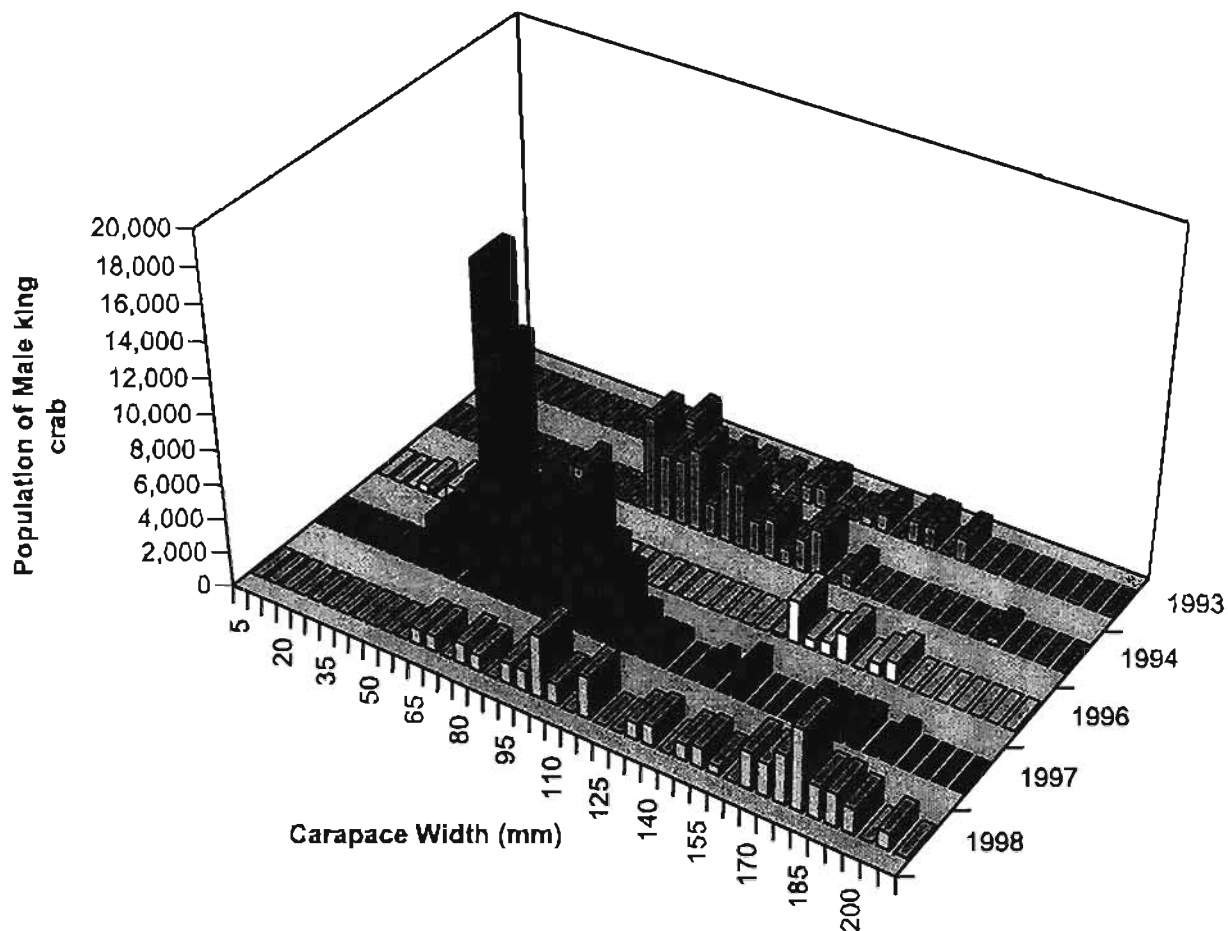


Figure 6. Estimated male red king crab population size distribution from trawl surveys in the Alaska Peninsula Area, 1993-1998.

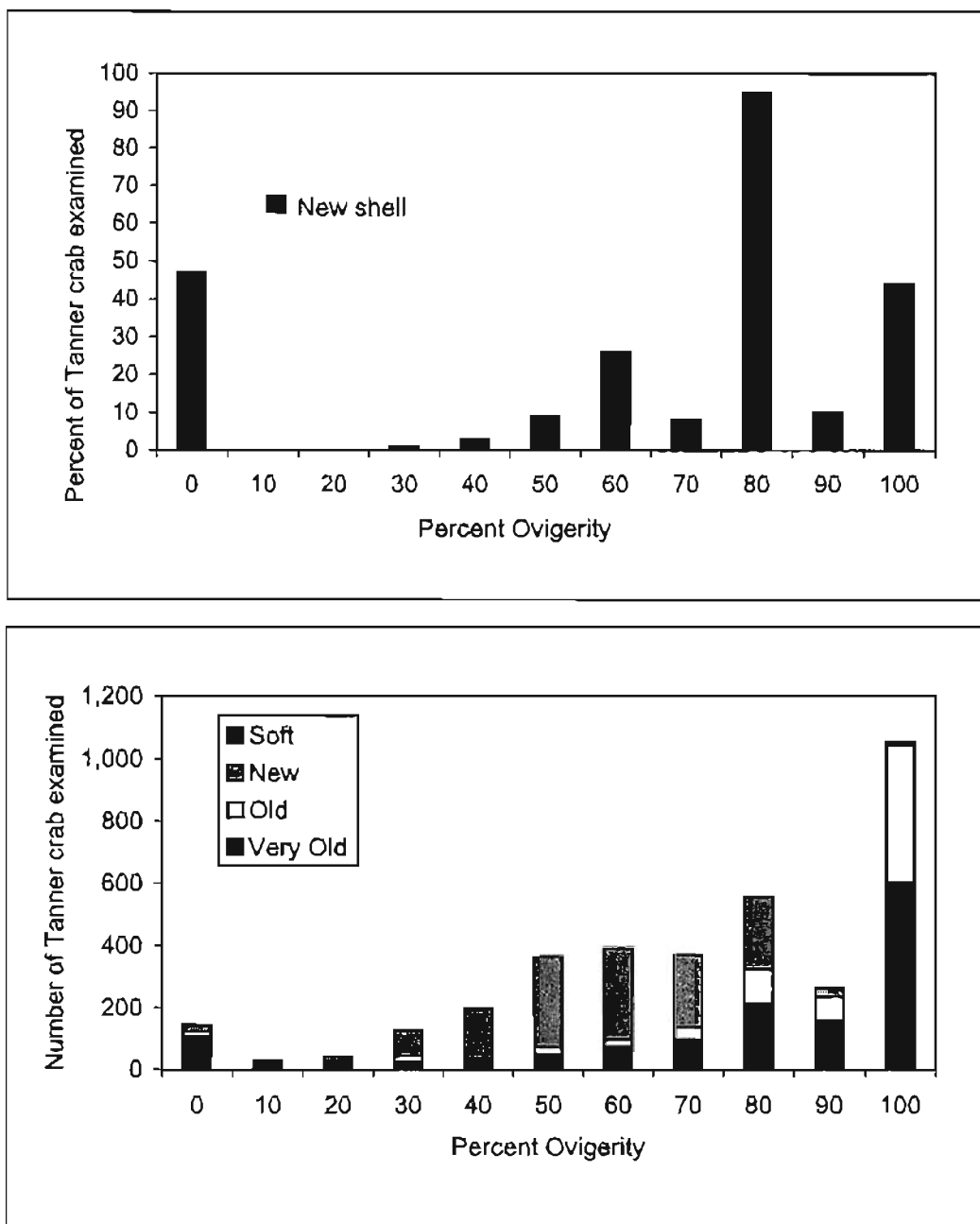


Figure 7. Reproductive and shell condition of female red king and Tanner crab captured during the 1998 Kodiak and Alaska Peninsula trawl surveys. Tanner crab ovigerity is presented as a stacked bar graph of shell ages.

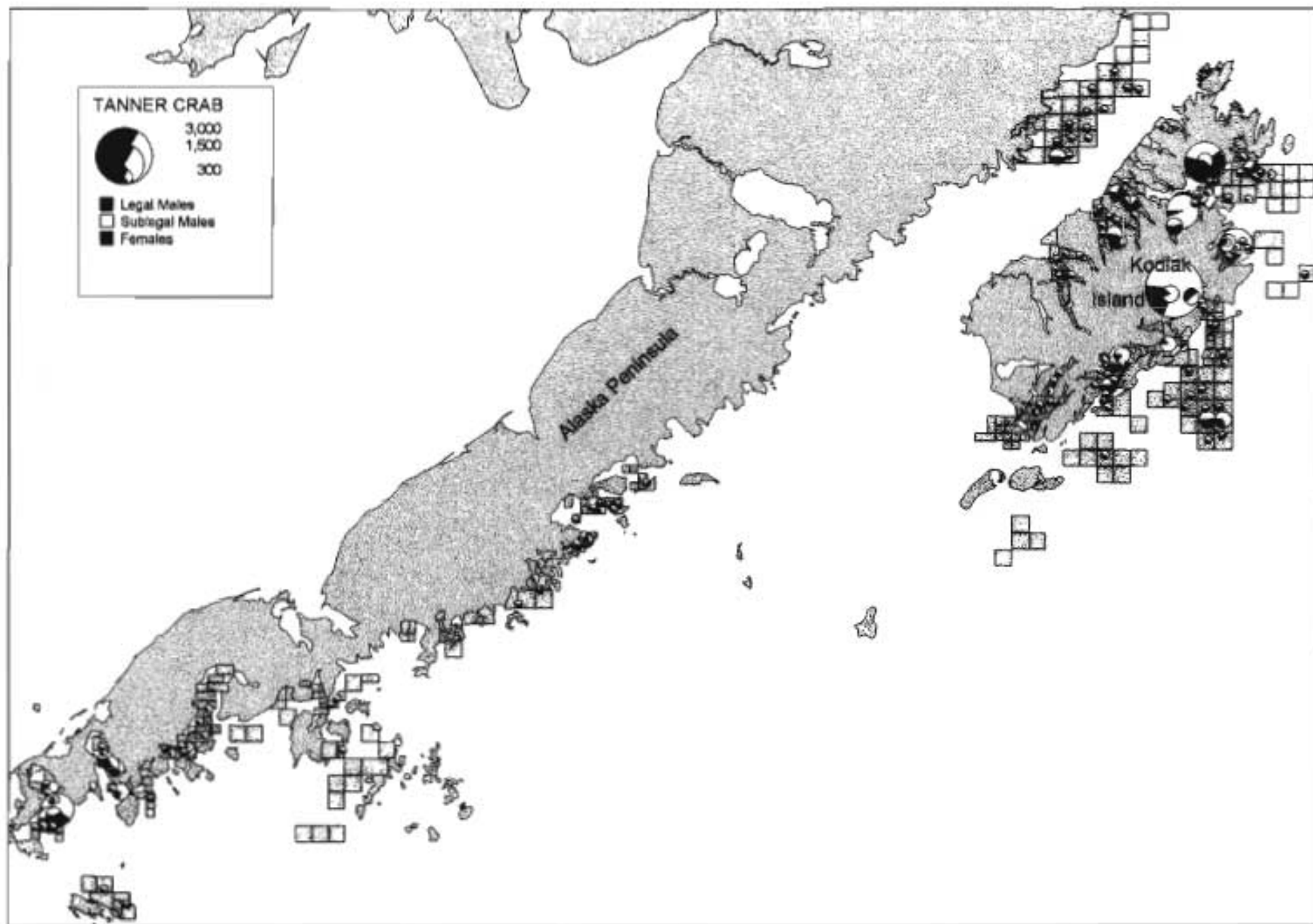


Figure 8. Tanner crab catch per kilometer towed from the 1998 Kodiak and Alaska Peninsula trawl survey.
e.g. The size of disk represent estimated abundance, shading represents sex and size.

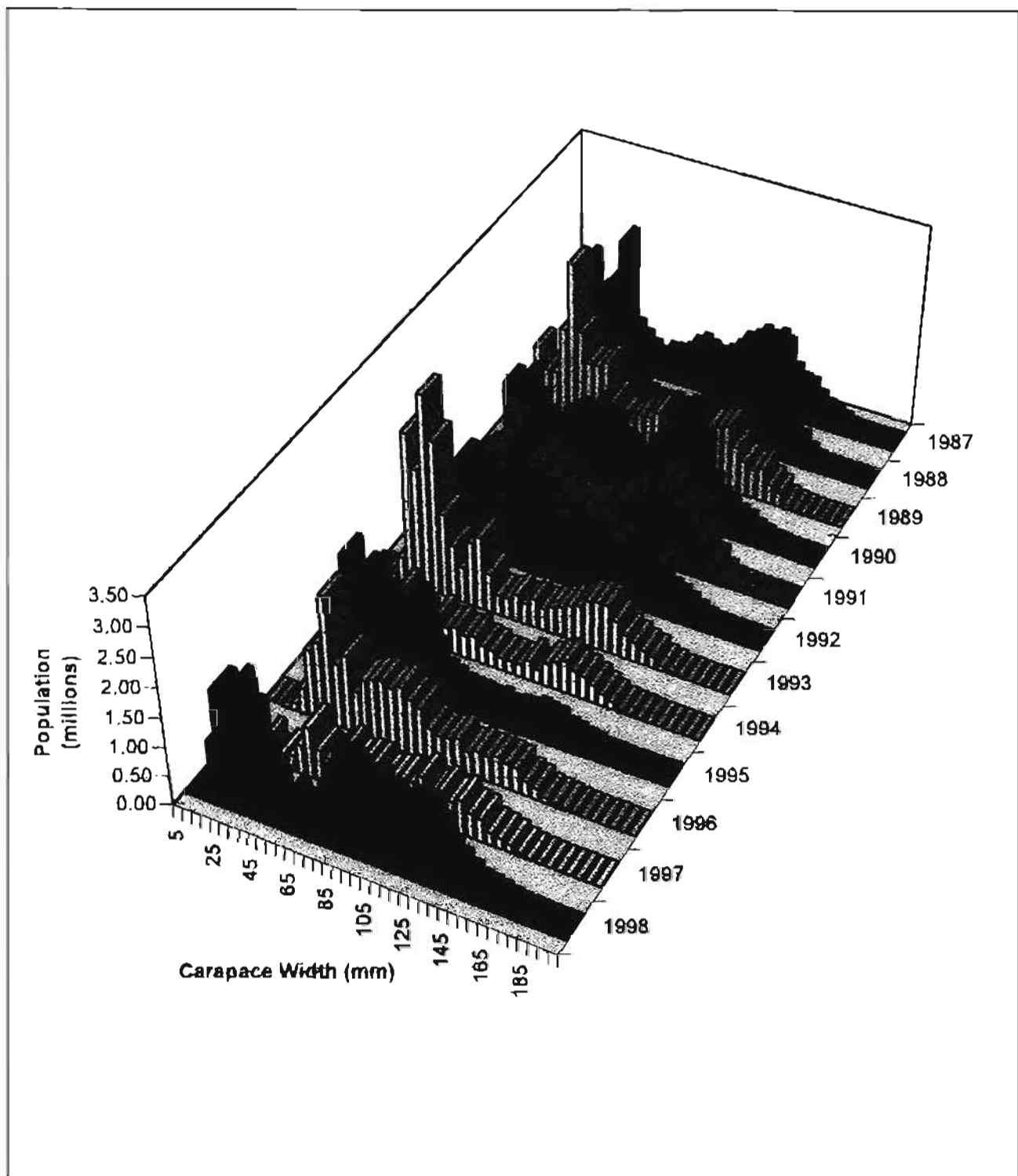


Figure 9. Estimated size distribution of male Tanner crab from trawl surveys in the Kodiak District, 1987-1998.

Proportion of
Population

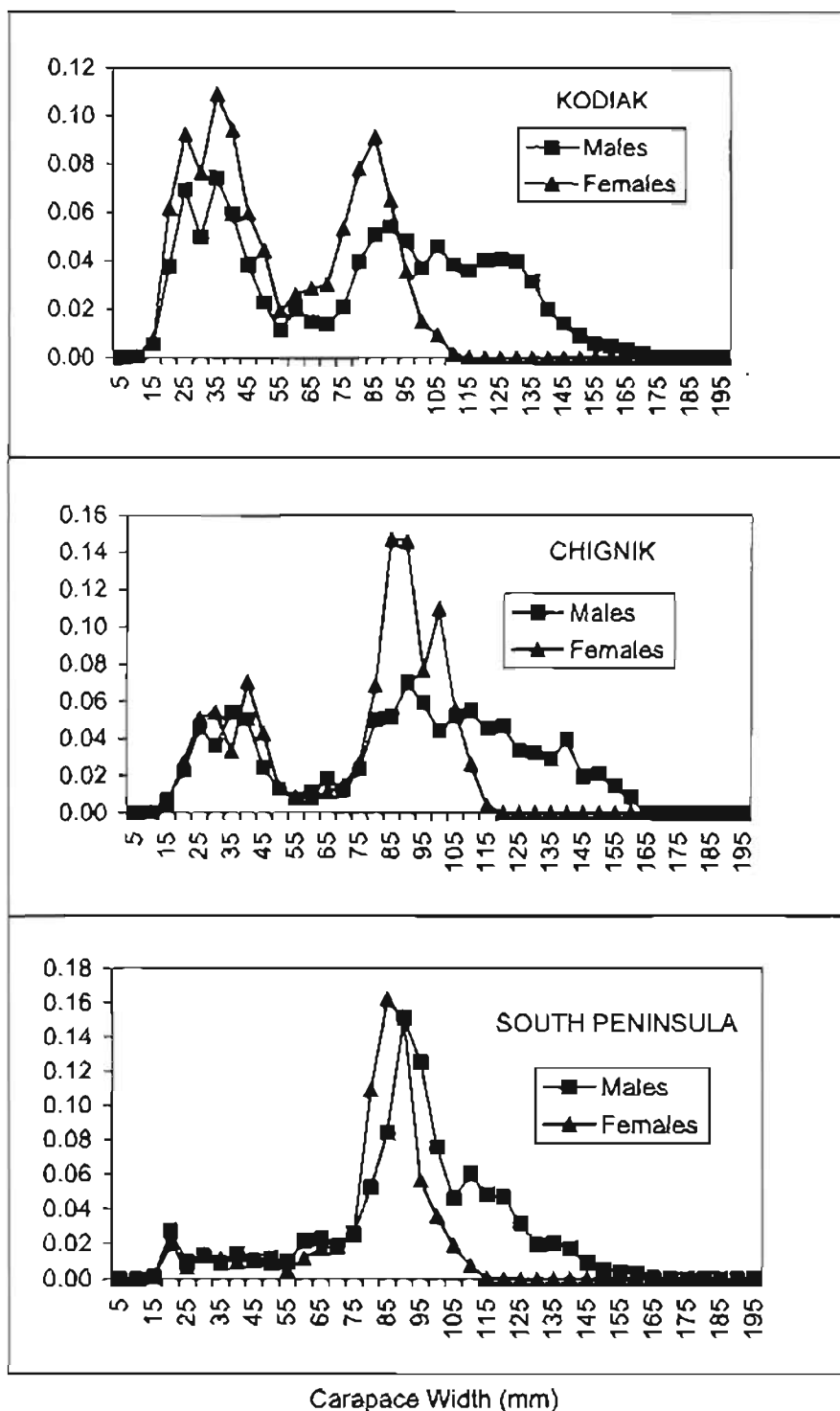


Figure 10. Size distribution of male and female Tanner crab populations during the 1998 Westward Region trawl survey.

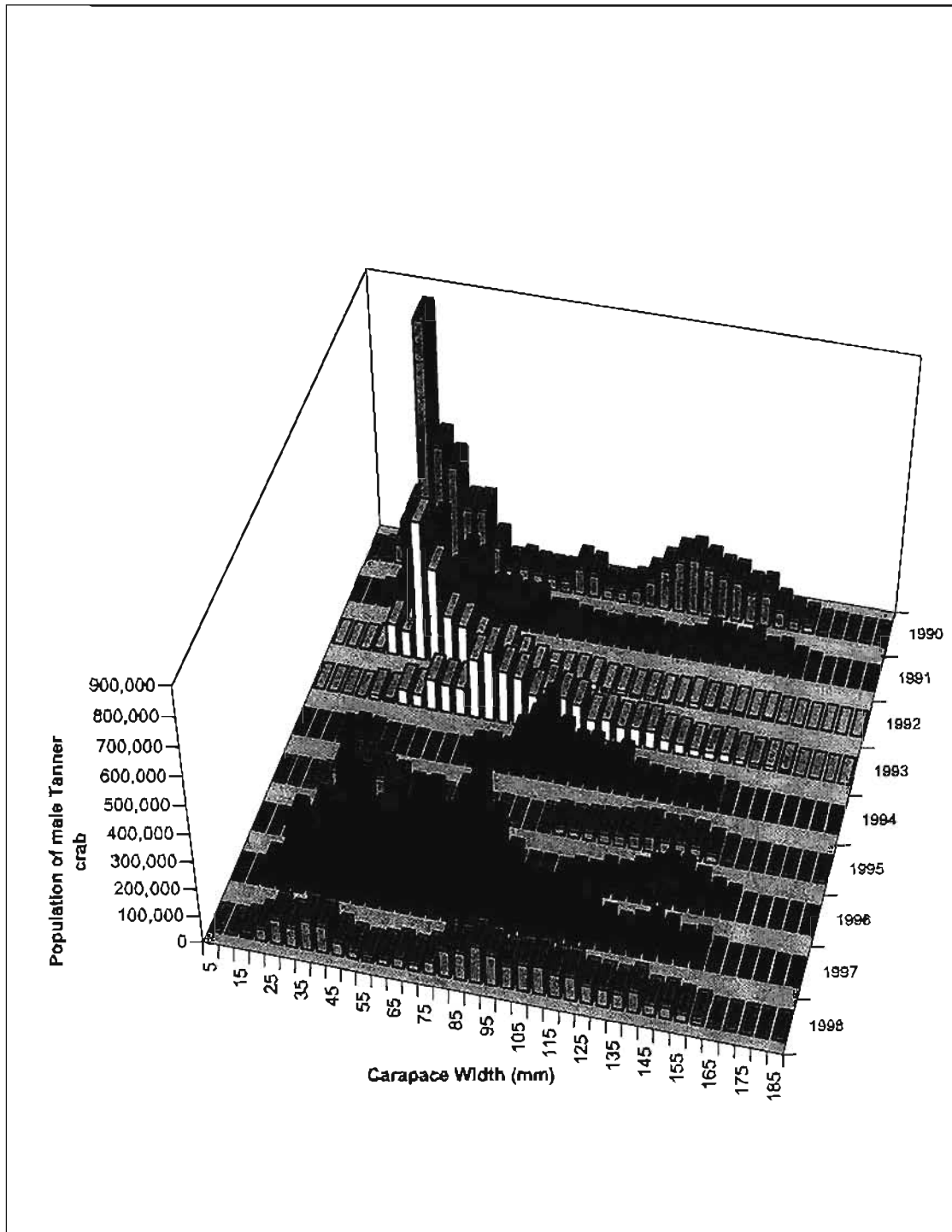


Figure 11. Estimated male Tanner crab population size distribution from trawl surveys in the Chignik Management District, 1990-1998.

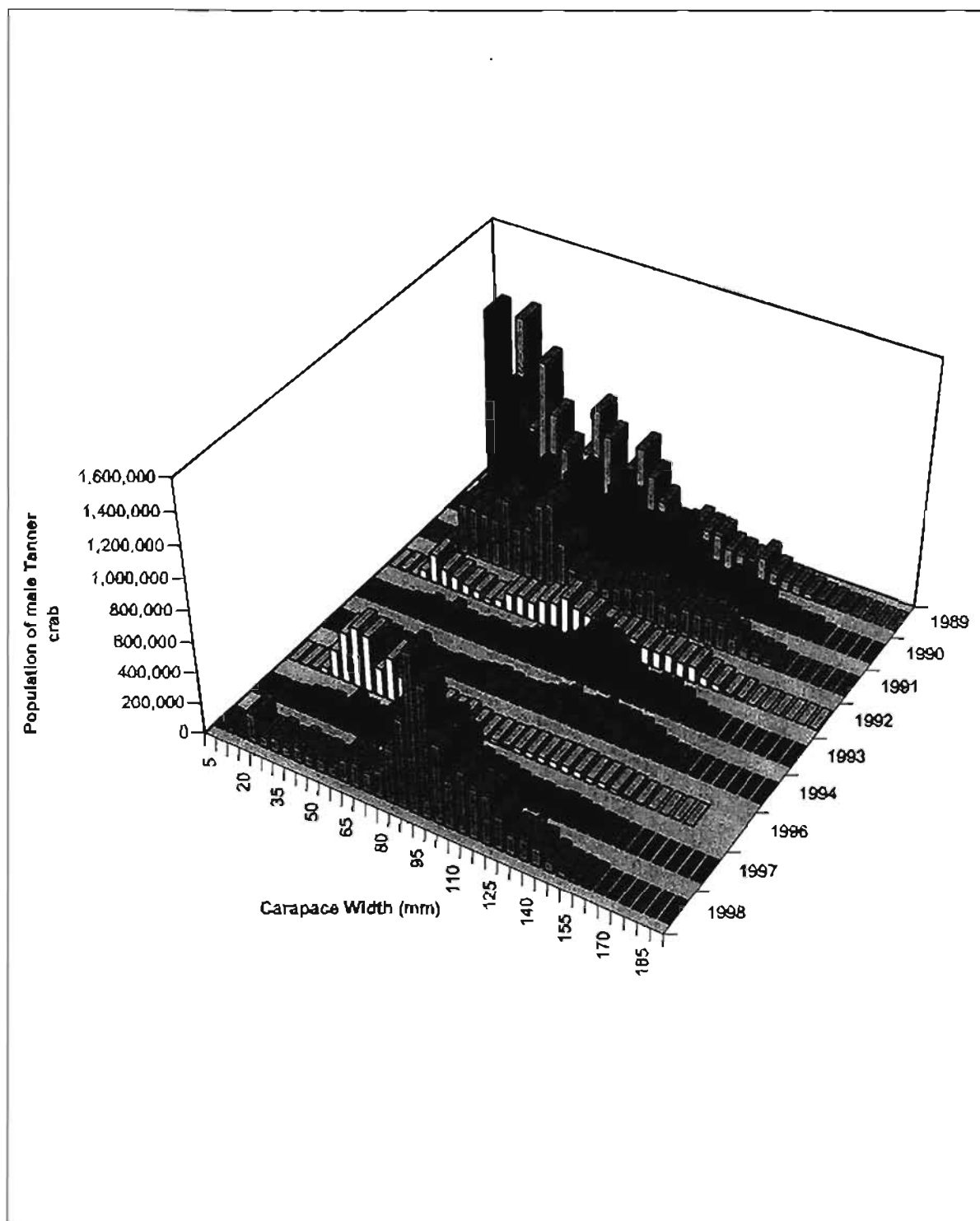


Figure 12. Estimated male Tanner crab population size distribution from trawl surveys in the Alaska Peninsula Management District, 1990-1998.

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